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Making Ensemble Possible: How special groups organize for collaborative creativity in conditions of spatial variability and distance

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Making Ensemble Possible

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Copenhagen Business School
HANDELSHØJSKOLEN

Making Ensemble Possible

How special groups organize for collaborative creativity in conditions of spatial variability and distance

Shannon O'Donnell

Doctoral School of Organisation and Management Studies

PhD Series 7.2013

Making Ensemble Possible:

How special groups organize for collaborative creativity in conditions of spatial variability and distance

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PhD Dissertation

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Making Ensemble Possible:

How special groups organize for collaborative creativity in conditions of spatial variability and distance

Shannon O'Donnell, PhD Fellow, Copenhagen Business School

ABSTRACT (In English)

The enormous challenges and opportunities impacting the world community today increasingly require people to practice collaborative innovation effectively both in person and across geographic boundaries. Simultaneously, advances in technology such as social networking tools, digital 3-D representations, virtual worlds, and open source practices are inspiring generations of users to develop new kinds of adaptive collaborative networks and capabilities. But when people work across organizational and geographic boundaries, new challenges arise that make it difficult for groups to achieve the levels of excellence they are capable of achieving together in close proximity. Practitioners need help determining how best to perform collaborative creativity given unique and dynamic work conditions. Meanwhile, as new forms of creative group work emerge at an accelerating pace, researchers struggle to keep up with and develop nuanced understanding of the variations in collaborative processes we increasingly see performed.

With this PhD research, I aim to increase our understanding of a particular, specialized form of collaborative creativity called "ensembling." I investigate this phenomenon by studying it in diverse—including "stretched"—conditions. By stretched, I mean that, literally, groups are stretched apart in space as membership size and spatial distance between members increase and work configurations vary. The groups I study are those both capable of achieving and driven to achieve a peak-performance state of ensemble, and do so via the enactment of an interdependent set of methods that call ensemble into being, a process I call *ensembling*. In their ideal form, these work methods support the emergence of ensemble and result in the creation of aesthetically coherent and novel outcomes that are particularly responsive to the contexts in which they are made.

To investigate the phenomenon of ensemble, I first develop a construct of ensemble based on informant descriptions, and use theory and data to develop a detailed description of how ensembling is performed in natural conditions (i.e., in close physical proximity). Then I look at an extreme example in which a set of expert groups' ability to ensemble was put under stress by an unprecedented work task. In 2009, multiple string quartets (many considered world class) organized to perform a new musical composition. The composition challenged four quartets at a time to perform as an integrated ensemble while sitting apart, in various configurations, and at spatial distances of up to 70 feet. To help them address the difficulties produced by increased membership and distance, the musicians integrated a simple coordinating technology into their process.

To learn how participants made ensemble possible given these new conditions, I engaged multiple qualitative methods for generating data and multiple perspectives for interpretation. I first considered their process as an iterative approach to exploring strategies for addressing constraints, in order to show how the methods of ensembling interacted with conditions of increased group size, increased spatial distance and configurational variability, and to elicit their evolving beliefs about what methods made ensemble more likely to occur given these conditions. Then I performed an alternative interpretation, disrupting this logic and exploring the ways in which participants used methods of ensembling—particularly openness to uncertainty and reconceiving—to create unanticipated potentialities for ensemble to emerge despite constraints. I show how they worked with a coordinating technology called a "click-track" in important new ways that went beyond "merely" achieving synchronous coordination to increasing their autonomy, relatedness, and ability to demonstrate artistic virtuosity, enabling them to engage equally in leadership and participation and to play. Finally, performing a comparative analysis across sub-units of the case, including examples of breakdown in the process, I generated additional insights into what conditions, beliefs, methods and behaviors enable or inhibit processes of ensembling.

Integrating learning from analysis and interpretation, I propose a new range of conditions in which ensembling is possible, and a revised and expanded description of the methods by which groups ensemble. Conditions can expand to include larger groups with limited-tenure consisting of enduring-tenure sub-groups, multiple task interdependencies at group and sub-group levels, balanced tenure at sub-group level, a balance between proximity and distance, opportunities to work with and without technological mediation, and self-determined configuration variability. I show that the emergence of ensemble depends on, for instance, a shared purpose to ensemble, and methods such as a "struggle" phase, episodes of close physical proximity, collective leadership, "dueting" in different configurations, reconceiving constraints, living with the paradox of one-and-four, opening the process to uncertainty and to the emergence of consent, and subliminal technology engagement. Ultimately, these groups demonstrated an increasing ability to adapt to new conditions faster and more creatively, making new configurations possible, and suggesting ways in which ensemble might be performed in other kinds of group settings. I summarize findings in the form of a "framework of ensembling" that is meant to serve as a tool to further enrich our yet nascent understanding of this complex phenomenon and to aid in the exploration of ensembling in contexts outside the usual places we expect it to occur.

Muliggørelse af ensemble:

Hvorledes grupper organiserer sig med henblik på kollaborativ kreativitet i relation til rumlig variabilitet og distance

Shannon O'Donnell, Ph.d.-Fellow, Copenhagen Business School

ABSTRAKT (på dansk)

De enorme udfordringer og muligheder, som i stigende grad påvirker verdenssamfundet i dag, kræver, at folk i stadig højere grad praktiserer kollaborativ innovation effektivt, både på et personligt plan, og på tværs af geografiske grænser. Samtidig inspirerer teknologiske fremskridt, som for eksempel sociale netværksværktøjer, digitale 3-D repræsentationer, virtuelle verdener, og open source-praksisser flere generationer af brugere til at udvikle ny kunnen og nye former for samarbejdsnetværk, der kan tilpasses situationen. Men når mennesker arbejder på tværs af organisatoriske og geografiske grænser, opstår nye udfordringer, som gør det vanskeligt for grupper at opnå samme præstationsniveau, som de kan opnå sammen i umiddelbar nærhed af hinanden. De udøvende personer har brug for hjælp til at bestemme, hvordan man bedst udfører kollaborativ kreativitet, givet unikke og dynamiske vilkår. Efterhånden som nye former for kreativt gruppearbejde opstår i et stadig hurtigere tempo, kæmper forskere for at holde trit med udviklingen, og for at opnå en nuanceret forståelse af de variationer i samarbejdsprocesser, vi i stigende grad ser udført.

Med denne Ph.D.-forskning, sigter jeg efter at øge vores forståelse af en bestemt, specialiseret form for kollaborativ kreativitet kaldet "ensembling." Jeg undersøger dette fænomen ved at studere det under forskellige - herunder "udstrakte" - betingelser. Med ”udstrakt” mener jeg bogstaveligt talt, at grupperne fjernes - strækkes ud - fra hinanden i et givet rum, alt efter antallet af medlemmer, og den fysiske afstand mellem gruppens medlemmer øges, og samarbejdskonfigurationer varierer. De grupper, jeg studerer, er både i stand til, og er drevet til at opnå, en ensemble-tilstand af højeste karakter, hvilken de gør ved brugen af en række indbyrdes afhængige metoder, der frembringer ensemble - en proces jeg kalder ”ensembling”. I deres ideelle form, understøtter disse arbejdsmetoder fremkomsten af ensemble, og resulterer i skabelsen af æstetisk sammenhængende og nye resultater, der er særligt lydhøre over for de forhold, hvorunder de er frembragt.

For at undersøge fænomenet ensemble, undersøger jeg først begrebet baseret på beskrivelser, og bruger teori og data til at udarbejde en detaljeret forklaring af, hvordan ensembling udføres under normale forhold (d.v.s. i tæt fysisk nærhed). Derefter ser jeg på et ekstremt eksempel, hvor en række ekspertgruppers evne til at ensemble blev sat under pres af en hidtil uset arbejdsopgave. I 2009 mødtes flere strygekvartetter (hvoraf mange anses for at være i verdensklasse) for at opføre en ny musikalsk komposition. Stykket udfordrede fire kvartetter til at spille som et integreret ensemble, mens de sad spredt, i forskellige konfigurationer, op til mere end 21 meter fra hinanden. For at afhjælpe de problemer, der blev skabt af den større

gruppe, og distance mellem gruppemedlemmer, brugte musikerne en simpel koordinerende teknologi i processen.

For at forstå, hvordan deltagerne muliggjorde ensemble under disse nye betingelser, har jeg anvendt kvalitative metoder til generering af data, og anlagt flere perspektiver for fortolkning. Jeg betragtede først deres proces som en iterativ tilgang til at fastlægge strategier til at adressere begrænsninger med henblik på at vise, hvordan ensembling-metoderne interagerede med varierende betingelser som større grupper, større fysisk afstand mellem medlemmerne, varierende gruppekonfigurationer, og for at klarlægge deres meninger om, hvilke metoder der gjorde ensemble mere sandsynlig, givet disse betingelser. Derefter lavede jeg en alternativ fortolkning, hvor jeg ikke gik ud fra denne logik, og udforskede de måder, hvorpå deltagerne anvendte metoder til ensembling - især åbenhed over for usikkerhed, og for at udtænke nye metoder – for at skabe uventede potentialer for ensemble, til trods for de givne begrænsninger. Jeg viser, hvordan de arbejdede med en koordineringsteknologi kaldet "click-track" på nye, vigtige måder, der ikke "blot" gjorde det muligt, at opnå synkron koordinering, men også øgede deres selvstændighed, samhørighed, og evne til at demonstrere kunstnerisk virtuositet, så de kunne engagere sig ligeligt i ledelsen, deltagelsen og i udførelsen. Ved hjælp af en komparativ analyse af delelementer, herunder eksempler på nedbrud i processen, genererede jeg yderligere indsigt i, hvilke betingelser, overbevisninger, metoder og adfærd der muliggør eller hæmmer processerne i ensembling.

Ved at integrere lærdom fra analyse og fortolkning, foreslår jeg en ny række betingelser, som muliggør ensembling, og en revideret og udvidet beskrivelse af de metoder, hvorved grupper kan ensemble. Betingelserne kan udvides til at omfatte større grupper med begrænset samspilserfaring, der består af undergrupper med langvarig samspilserfaring, talrige opgaveafhængigheder på gruppe- og undergruppeniveau, undergrupper, som hver især har spillet sammen i cirka lige lang tid, balance mellem nærhed og distance, muligheder for at arbejde med og uden teknologiske hjælpemidler, og selvbestemt konfigurationsvariabilitet. Jeg viser, at fremkomsten af ensemble afhænger af, for eksempel, et fælles formål med ensemble, metoder såsom en "kampfase", tilfælde af tæt fysisk nærhed, kollektiv ledelse, duetspil i forskellige konfigurationer, fortolkning af begrænsninger, accept af én-og-fire-paradokset, åbning af processen over for usikkerhed, enighed, og underliggende brug af teknologi. I sidste ende demonstrerede disse grupper en voksende evne til at tilpasse sig nye vilkår hurtigere og mere kreativt, hvilket muliggjorde nye konfigurationer, og foreslog måder, hvorpå ensemble muligvis kan udføres i andre former for grupper. Jeg opsummerer resultaterne i form af en "ramme for ensembling", der er beregnet som et redskab til at berige vor endnu kun spirende forståelse af dette komplekse fænomen, og for at hjælpe i udforskningen af ensembling i sammenhænge uden for de sædvanlige rammer, hvor vi forventer det vil forekomme.

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Reflecting with gratitude on all of those who helped me with this work so warms my heart, I could almost think to undertake a second PhD!

Warmest regards,

Shannon O'Donnell

Chapter 1. INTRODUCTION

Image 1.1: String quartets rehearse at The Old Farmhouse;
Paul Robertson (*foreground*), with members of the Court Lane Ensemble. [1]

Most people have no idea that there's an aesthetic or difference in sensibility between listening and playing to something that's clicking. But to me, it's like a negation of everything I believe in.

- Paul Robertson, First Violin, The Medici String Quartet

[1] Photo Source: www.musicmindspirit.org.

A debate breaks out as sixteen string quartet musicians gather on the fourth floor landing of a six-floor spiral staircase, instruments in hand. Late in the evening of their first rehearsal as a group, the four quartets struggle with the problem of performing a new composition together while sitting apart on four different floors (a physical arrangement inspired by instructions from the composer in the score). With up to 36.2 vertical feet separating each group from another, it's proving impossible to play in time. They can't always hear one another, and when they can hear there's a delay. A solution has been proposed: to use technology, the "click-track"—sort of a shared, radio-frequency-connected metronome—to help the musicians coordinate. But this solution, known in advance as "Plan B," raises serious aesthetic concerns.

The request to implement the click-track followed a recent outcry from the cellist of the fourth quartet, the quartet seated on the lowest level: "We're in jail down here!" Quartet four is having difficulty hearing the other quartets well enough to diagnose whether and to what degree they are playing out of time. Gazing up the open spiral staircase, they can only see the third quartet, seated one level up and opposite them, and the relay of visual cues sent from above, via gestures and the pulsating bodies of visible colleagues, aren't giving the quartet enough information.

The first violinist of the second quartet, J, expresses his concern that the click-track, being fixed, can't accommodate and adjust for the natural reverberation of sound through the six-story vertical funnel of space, as the musicians can. If created in response to a click-track "banging away in their ears," rather than born of listening to the space and one another, it won't be "music" they perform. Their art is at stake. The second violinist of the fourth quartet, Lina, counters: "If it's not together, it can't be musical anyhow." She suggests the best approach is to use the click-track to play in time together, so that they can focus on developing the "layers" of sound that the audience, who will also be seated across four different floors, will perceive.

Tony, cellist for the first quartet, challenges Lina's idea. Having walked about the different floors during rehearsal to listen to the effect, he says, "You can only hear [the quartet seated on] what floor you're on." This news alarms everyone—the composer intends for the audience to hear the layered sound from all four quartets!—and a new string of suggestions are made: What if we all played on the ground floor, so that the sound wafted up the spiral staircase? What if we all sat together on the

middle floor? Or split ourselves across two floors, two quartets per floor? Ivo, the first quartet's violist, reminds his colleagues that the producer of the event won't agree, the point of the exercise being to stretch the sound experience vertically. Tickets have been sold on the basis of this configuration. The first violinist of his quartet, Cathy, cries in protest: "But we're the musicians! We have to play the world premiere!"

When a second group of quartets gather two months later to perform the same composition in four very different sorts of spaces, they start their work together using the click-track. Cathy, who participates in both groups, compares starting with the click-track to "rushing straight for a Cesarean section instead of trying natural birth first!" But this process has its benefits. Playing "tight" together in time with the click makes it easier for the musicians to hear one another, which in turn, they discover, gives them "freedom to listen." It also affords them flexibility in relation to variable performance configurations.

This flexibility they now exercise. For their second performance, the producer arranges for the quartets to sit conveniently together on the ground floor, at the base of an open staircase, while the audience will listen to the performance from their seats on the first floor, at the top of the stair. Within five minutes of rehearsal, the backs of their chairs knocking against one another, the quartets discover they have a problem of "too close" where there once was a problem of "too far." The music sounds muddled. They can't separate the sounds they hear. The musicians rebel and invent a radical alternative: they arrange themselves divided across the landings of the staircase. They cue the click-track and get to work. At the end of their brief rehearsal, the first violinist of the first quartet, Paul (yes, the same Paul Robertson quoted at the start of this chapter), declares the result "ravishing."

I select and juxtapose these two moments, from different points of time in the lifespan of the same musical project, to bring into focus the central questions in this study: How do these group members, responding to the difficulty of unusual work conditions, move from feeling "in jail" while attempting to perform together to feeling "freedom"? From perceiving one staircase as an impossible constraint to perceiving another as an optimal condition? From

declaring a coordinating technology the enemy of art and "a negation of everything I believe in," to declaring the outcome of a process so coordinated as "ravishing"? This phenomenon is precisely what I have endeavored to understand during the course of this research: How it is that creative groups, such as these string quartets, who engage in a special kind of collaborative process and aspire to the highest levels of achievement in their field, come to embrace work in conditions that challenge their usual ways of working and experiencing ensemble?

Through this research, my aim has been to increase our understanding of the processes by which groups make a special form of collaborative creativity possible. I call this special form *ensembling* as it calls the quality of ensemble into being. "Ensemble", as I will demonstrate in this thesis, describes a peak performance experience that members of collaborative groups describe in rich and varied ways, and that I synthesize as follows: *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose.* Ensembling includes the methods, behaviors and beliefs by which creative groups realize this experience.

To investigate ensemble, I look in depth at an extreme example in which groups expert at ensembling were challenged by an unprecedented work task. In 2009, multiple string quartets (many considered world class) organized to perform a new musical composition. The composition challenged four quartets at a time to perform as an integrated ensemble while sitting apart, in various configurations, and at spatial distances of up to 70 feet. To help them address this difficulty, the musicians experimented with both organic and artificial means of coordinating their work. But they didn't stop at coordination. Invoking ensemble as an aesthetic criteria, and using the methods of ensembling to generate new collaborative potentialities, they developed ways of working with artificial means, such as a simple coordinating technology, to sustain a high level of coordination *and* achieve spontaneous variation, dialogue and play. Ultimately, these groups demonstrated an increasing ability to adapt to different conditions faster and more creatively, making new configurations and experiments possible. By learning from this example, our understanding of the process of ensembling and the way in which expert groups perform ensembling in relation to changing work conditions increases, and suggests possibilities for performing ensemble in other kinds of distributed work settings.

In this chapter, I introduce this study, the motivations behind it, and the research problem it addresses. I also provide a preview of what will follow in the rest of the thesis: I describe the research design, offer a summary of key findings and contributions, and present an outline of how the thesis is organized. I situate the study as relevant to both practice and research. I link this research to the study and practice of small group work and creativity, the management and enactment of innovation processes, and technology-enabled distributed work, and I describe the unique resources, including my own background as a practitioner in performing arts, that made this study possible. Since your interests as a reader are unique, this introduction is designed to help you navigate the thesis to suit your own priorities.

MOTIVATION

The need to understand how to practice collaborative creativity has never been more urgent. The enormous challenges and opportunities impacting the world community today increasingly require groups to practice collaborative creativity and innovation effectively in co-located and distributed conditions (PricewaterhouseCoopers 2008). Individuals, organizations and nations frequently team up to address difficulties and opportunities that cannot be addressed apart, pooling knowledge and resources while sharing risk. Simultaneously, rapid advances in technology such as 3D computer modeling, social networking tools, virtual worlds and open source practices continuously enable new forms of distributed, collective address (McAfee 2006; Lakhani and Panetta 2007; Orlikowski 2002, Wageman et al 2012).

But when people work across organizational and geographic boundaries, new challenges arise that make it difficult for them to achieve the levels of excellence they are capable of achieving together in close proximity. A better understanding of the way in which conditions of distance and distribution interact with collaborative creativity is needed to help us sort out what we can do well and what we might learn to do well, what tradeoffs we can afford to make while upholding standards of excellence, and what new kinds of performance we may be capable of realizing. This is a very general problem. A better

understanding of how conditions of distance and distribution affect our abilities to perform collaborative creativity and innovation well could potentially offer huge benefit to business and society, bringing greater talent and resources to bear on complex problems, and generating emergent outcomes greater than what any individual person, organization, or nation is possible of achieving.

The limits of our current understanding of how collaborative creativity is performed in both physically proximate and distributed conditions holds us back. What we mean by "collaboration" is typically underspecified in team research; we use the term loosely to define any team-like behavior (Wageman et al 2012), sometimes even routine coordination of individual tasks (Cummings et al 2009). We've known for a long time that there is a significant difference between performing highly planned sequential work tasks independently, and performing work tasks that are highly iterative and reciprocal, requiring mutual adjustment (Thompson 1967). Infinite finer distinctions can be made, based for instance on the degree of centralization in organization, the degree of synchronicity sustained in group work, methods for harmonizing contributions, and attitudes towards variation and emergence.

Studies of innovative teams do address how managers are to lead, organize and create conditions for effective teams in co-located conditions (Hackman 1987, 2002; Edmondson 1999; Wageman 1995). We also know something about *parts* of the work of creativity and creative groups, reported as the psychology and traits of individuals (Csikszentmihalyi 1990); the "context"—if social—for individual creative work (Amabile 1996, 1983); features and behaviors of "great groups" and their leaders (Bennis and Biederman 1997), general process phases and "rules" for creativity (Sutton 2001, Nussbaum 2004, Brown 2008); or categorical descriptions of essential practices in which creative groups engage (Sawyer 2007, Catmull 2008). But thick descriptions of complex processes of collaborative creativity that make an effort to differentiate between forms of collaboration to increase specificity in our understanding, are difficult to find.

Meanwhile, "the nature of collaborative activity [is] changing at an accelerating pace" (Wageman et al 2012: 1). The well-studied bounded group that operates with a shared purpose to meet or exceed client expectations while building capabilities (Hackman

2002) is still active, but the theoretical constructs we've used to understand that type of group now restrict our investigation of contemporary group activity (Wageman et al 2012). Groups today, let alone their processes, are rarely static, rather forming and reforming their membership and approach to address different tasks and dynamic conditions. They come together repeatedly to perform both highly coordinated *and* creative/spontaneous work. As they do, they negotiate variability in group membership, degrees of spatial and temporal distance separating members and requiring diverse engagement with communication and information technologies (Cummings et al 2009), possible configurational imbalance in member distribution (O'Leary and Cummings 2007), and varying degrees of uncertainty in their competitive environment (Kozlowski and Ilgen 2006). In order to understand how new groups come together, how the parts of their work cohere into a set of interdependent work methods which groups adapt live to the particulars of the problem and conditions as they experience them evolving, we need thick descriptions of group work processes and new ways of understanding how group processes interact with changing conditions.

The increasing, and insufficiently differentiated and understood, range and variability in the forms and conditions of our work together is also relevant to our study of collaborative groups working in distributed, digital conditions. Group work at a distance is usually studied in a fairly homogeneous way, in terms of coordination, information exchange or knowledge transfer, and "best practices" (Orlikowski 2002:253). Studies of distributed work groups often focus on communication patterns and rhythms for coordinating modular work tasks that are completed independently, then inserted "plug-and-play" (Maznevski and Chudoba 2000; Orlikowski 2002; Hamel 2011). In the case of self-managing groups like open source software engineers, distributed teams are studied for the form and frequency of communication between people making individual contributions to a collective effort, where innovation is concerned with accessing distributed knowledge (Lakhani and Panetta 2007). Boundary objects are considered, in how they mediate between different kinds of knowledge to support collaborative knowledge creation (Carlile 2002). Meanwhile, we don't yet have the tools we need to study deep variations in distributed group work beyond coordination and knowledge creation because we aren't yet talking specifically enough about how collaboration is enacted in co-located conditions. The problems of how to study creative processes in both co-located and distributed conditions more precisely, how these teams sustain coordination in an emergent process without

organizational (top-down) control[2], and how to develop capabilities for enacting collective creativity in distributed and variable conditions, persists.

To address the need for more nuanced distinctions between collaborative practices and to aid efforts for understanding how to perform collaborative creative work, I engaged in a study of expert live performing arts groups driven to ensemble, and looked at an extreme example in which these groups tried their methods in stretched conditions. Researchers such as Hackman (1987, 2002), Sawyer (2003, 2007) and Barrett (1998) have argued the value of looking to the practices of arts ensembles and other live performing teams to increase our understanding of effective group creativity and performance on the basis that teams performing in real time experience immediate feedback and consequences, enhancing their learning capabilities and speeding innovation. By "stretched" conditions, I mean that, literally, the groups were stretched apart in space: members experienced an increase in group size, in spatial distance between members, and in degree of configurational variability. These conditions mimic those experienced by groups in more business-like settings, and, as we learn in this case, seem to necessitate use of an artificial means for supporting synchronous work, such as a coordinating technology. Since these groups are particularly good at coming together, to an extreme degree—thinking towards the same point, collectively—I suggest that we can learn by observing how they respond to these conditions, what actions they take, and what trade-offs they are willing (and not willing) to make. And that this learning will be transferrable to other settings.

THE RESEARCH PROBLEM

My research problem deals with the need to understand more about the phenomenon of ensemble and the process of ensembling as a special form of creative group collaboration. Ensemble describes an emergent quality exhibited by an extreme form of collaborative work in which performing artists frequently engage, and which yields novel and innovative outcomes (Austin and Devin 2003). Empirical studies suggest that the phenomenon of ensemble has occurred in other settings as well, giving examples from agile software

[2] Using improvisational jazz performance as a metaphor for redescribing organization structure, Hatch (1999) shows how jazz musicians sustain coordination collectively, without top-down control.

development teams (Austin and Devin 2003), a strategic and graphic identity firm (Austin and Hjorth 2012), and "live-performing" or "extreme action" teams such as airline cockpit crews (Hackman 2002) and emergency response teams (Kranz 2000, Klein et al 2006). Our understanding of ensemble is yet nascent, and little is known (outside the tacit knowledge of experts) about how to sustain this special quality of collective engagement, or how to increase the likelihood of its emergence in a more broad range of group activities and work constraints. Given that creative firms increasingly invest in the work of high-performing teams (Kozlowski and Ilgen 2006, Edmondson 2012) and stake their competitive strategies on their ability to generate novelty (Caves 2000, Howkins 2001, Florida 2002, Austin and Devin 2010), there may be demand for such understanding, which we might put to practical use in order to create conditions and opportunities for performing this special form of collaboration in a range of settings.

There is also a practical need to become more precise in how we describe and understand the kinds of collaborations in which we engage, so that we might strategically select and effectively engage in and lead these processes. As a member of the *Artful Making* research team (Austin and Devin 2003, 2010; Devin and Austin 2012; Austin, O'Donnell and Friis 2006; Austin and O'Donnell 2007, 2008; Austin, Nolan and O'Donnell 2007; O'Donnell and Devin 2012), I investigated the work processes and management practices of several creative firms. I began to notice, both in those firms and in related business literature on work groups, that the word "collaboration" was used freely to describe what were in fact a wide variety of work practices carried out with others. Even within firms classified as "creative," collaboration served as a term to describe tasks performed by sets of individuals with varying degrees of interdependence and included some activities better described as coordination or routine knowledge-sharing. Regardless of whether these sets of individuals exhibited any "team-like behavior" (Wageman et al 2012), such behavior was presumed by the label "collaboration." This lack of specificity rendered the word collaboration meaningless: we had to probe processes much further to find out what actions and behaviors were involved in the specific way that the studied group worked together, for what purpose members collaborated, what outcomes were desired from such engagement, and how collective processes were differently managed.

Take the comparison I make in the following paragraphs, of two "collaborations," as an example.[3] Both examples are from the field of arts: media arts and fine arts. The first describes an open source film animation project and the second a team of glass artisans at work on a new sculpture. Both examples being from the creative industries, we might expect to see more similarities between how these processes were designed and managed than differences, certainly insofar as agreement on what it means to "collaborate." Instead, I propose they offer dramatically different examples collaborative activity.

> The film *Live Music* was made via "the largest global animation collaboration ever" (Facebook, Mass Animation). The virtual studio Mass Animation organized the development of this five-minute computer-generated imagery (CGI) animated film from its platform on Facebook. More than 50,000 fans from 101 countries joined. From among the 17,000 amateurs and pros who downloaded the free animation software, 124 contributed scenes. Facebook fans voted on their favorites, an international jury of experts made selections, and Mass Animation took over the final cut. Fifty-one winning animators were awarded US $500 and their name in the credits. The film was released in theaters 20 November 2009. Mass Animation had tapped into the social networking scene, attracted a global workforce of self-motivated creative talent, generated professional content without studio overhead, and potentially unlocked, according to director and producer Yair Landau, "the future of creative collaboration" (Amidi 2008).
>
> Let's look at what "collaboration" meant in this context, by looking at how the making process was organized and managed to generate novelty/value. Before the crowd signed on, Mass Animation[4] had developed the story, dialogue, and soundtrack for the film (Robertson 2009). It had set the style and look of the film by making the first scene: designing the setting, designing the characters, and modeling character movement. Then Mass Animation opened a brief window of opportunity for competitive contributions: 17 November 2008 - 30 January 2009. Animators picked specific scenes to build, working within the aesthetic boundaries determined by the design. While management was almost invisible during this process (except for "jurors," to whom animators could write via the Facebook discussion page for

[3] The first example is adapted from O'Donnell 2009; the second example is adapted from O'Donnell 2009 and O'Donnell and Devin 2012.
[4] In partnership with Reel FX and Gentle Giant

help), the creative structure set forward by Mass Animation acted as a strict control over outcomes, ruling out the possibility for new ideas or discoveries that would require modifying the original design to be introduced by an animator (or a group of animators) and incorporated into the whole. The absence of management involvement at the "production" stage, given their ability to possibly approve creative departures, might itself be considered as a form of control: permissions could not be granted for significant changes in design. Landau took over the final cut, and Mass Animation (with Reel FX) worked with animators to refine the scenes for consistency, before taking over final rendering, lighting, and compositing (Ibid).

While Mass Animation designed a bold experiment in terms of process, it had admittedly modest aims in terms of outcome. It didn't set out to make an "insanely great" film (as Disney or Pixar, for instance, would do; Bennis and Biederman 1997, Catmull 2008), and they weren't expecting to win an Oscar. (They didn't.) They "collaborated" via crowdsourcing to get a film made quicker and cheaper and trendier, but not *better*. The outcome didn't emerge as a result of the collective work of a richly heterogeneous group of creative workers. The process wasn't designed for emergence. It was designed to execute, more or less creatively, and certainly more cheaply, the distinct vision the director set out from the start.

Now, let's look at an alternative process of collaboration, also led by an artist with significant influence over the outcome of the group's work.

Artist Dale Chihuly revolutionized studio glass making by using teams of artisans, and organizing processes for making large-scale, highly complex, and astonishing sculptures. Chihuly begins a making process by loosely sketching his idea on paper and presenting it to the team as inspiration, not blueprint, for the product. He draws, for instance, a Putti (cherub-looking creature; see **Image 1.A** as one example) holding a large fish in both hands, above his head. (You can watch videos of this process online.[5]) The self-directed team, including a master Italian craftsman in this case, interprets the sketch in its own way. The team expands or contracts in size, from 10 to 18 members, to suit the task, and set to work. Everyone is exactly where needed at the right time (importantly, as molten glass is a highly time-

[5] For example, see www.chihuly.com/Video/pino_150.html.

sensitive material). They respond collectively in the moment to the dictates of the glass form as it emerges, reacting quickly, as one body, in moments of near-crisis, to keep the process moving forward. Chihuly meanwhile observes from the edges, sometimes interjecting direction, often making drawings in response to the team's work, but rarely interfering with the work. When the master craftsman makes a decision mid-process to change a key feature of the design (the Putti will hold the large fish on one shoulder, instead of symmetrically overhead, a form that threatens not to stand, being weighted heavily to one side), Chihuly stays out of his way. The result: a one-of-a-kind sculpture emerges, a thing beyond Chihuly's sketched anticipation, and more complex than anything the master craftsman has attempted before. Chihuly, by now, has a new sketch ready.

Image 1.A: Putti Venetian Drawing, Charcoal on Paper, Dale Chihuly[6]

[6] Retrieved from http://www.chihuly.com/putti-venetian-drawing-1991_01_detail.aspx

Differences between these two collaborations abound.[7] Landau exerted a good deal of control over the process and outcome, having done most of the design work up front before engaging the creative team. And he did so without being physically present with, or available to, that team. Chihuly, on the other hand, turned over a lose sketch and got out of the way, allowing significant design decisions to emerge in the making process. He remained present, ensuring they had the resources and feedback to keep working, taking inspiration from his team for the next design iteration. Both groups included expert artisans who were given a degree of autonomy. However, members of Chihuly's team had the opportunity to influence one another directly by their actions, whereas participants in Landau's project have been provided with limited tools for communicating with one another (a platform for comments on Facebook). Animators were also restricted from making mid-process discoveries that would significantly alter the design. The form of the film was largely determined in advance, and the collaborative process designed to achieve that outcome quickly and cheaply. The form of the glass sculpture emerged from the process, surprising both the "designer" (Chihuly) and "maker" (master craftsman), and the collaborative process was designed in order to generate unanticipated specialness.

Based on comparisons like these, a practical problem suggested itself: collaboration is used to describe making activities people engage in together, but these activities are employed for different purposes and require different process structures, behaviors, and management practices[8] to be realized effectively. So-called "collaborative" processes as likely to be different from one another as they are to be similar. The film and glass making examples are both taken from within the arts field; even still they exhibit big differences in organization, leadership/management, and the source of and objectives for value creation. Our language for describing "collaboration" currently fails to help us understand, let alone

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[7] A good reason for variation in process design is the cost of iteration (Austin and Devin 2003, Thomke 2003). Film is generally expensive to produce, and is therefore often a highly plan-driven creative process. But glass making is also costly; the cost of fueling the furnaces makes glass more expensive to produce than other fine art items. In both examples, the costs of generating un-used outcomes are relatively high. However, given the fact that crowdsourcing lowers the cost of making, and thus the cost of iterative exploration, Mass Animation was arguably better positioned (in terms of cost) to capture emergent and unanticipated value by engaging in more idea-generating exploration.

[8] In the context of the *Artful Making* project, the "management practices" we studied were performed by the makers themselves as well as by those in designated management roles. I intend this research to speak to and for everyone involved in a collaborative making process, not an "elite" group (i.e. management).

guide, collaborative behavior and practice. We need to be more precise in how we describe different forms of collaborative work, engaged in different ways for different purposes.

As I collected and analyzed *Artful Making* data together with colleagues, I was aware that I compared descriptions of collaborative practices with those practices with which I was most familiar from my work in the theatre, as a member or leader of ensembles. I found that many of the creative groups we studied aspired in some way to achieve a quality of ensemble in their work together, and demonstrated behaviors and capabilities in that direction: they engaged in an iterative process, invited feedback into the process early and often, included the work of others in their own, opened themselves to uncertainty, and injected disruptive variation or invited crisis into their process to surprise their own expectations for the work[9]. In some instances, work conditions and objectives did not make ensembling the most desirable route to business value creation, and in some cases ensembling would have been an inappropriate ambition: for instance, when the value of the outcome was based on consistency with prior outcomes (e.g., replications of the original musical theater production, *The Phantom of the Opera*, staged around the world; Austin and O'Donnell 2008). But in other cases, ensemble was ripening in ways similar to what I had experienced in performing arts groups, but in different kinds of work settings. I realized that the boundaries of ensemble, in respect to appropriate work conditions and objectives, were yet undefined, and that we didn't have a clear enough concept of ensemble and its methods to say what did or did not "count" as an example of this practice outside a performing arts setting. All we did know is that ensembling was a "very different" sort of collaborative activity when compared to many examples in the literature on innovation.

The practical problem I perceived led to the development of my research problem and question (Booth, Colomb, Williams 2008, Dunleavy 2003). In order to better recognize where and how ensemble occurs, and to consider whether it might healthfully occur in other contexts, we need to increase our understanding about this phenomenon: its emergence and its limits. We know something about how it emerges in natural conditions: in the close physical proximity enjoyed by relatively small and usually bounded live-

[9] Groups that exhibited these behaviors and capabilities included, for instance, the Moonshine Shop, a manufacturing process-innovation team within the Boeing Company (Austin, Nolan and O'Donnell 2007); e-Types, a strategic identity and design firm in Copenhagen (used as an example of ensembling by Austin and Hjorth 2012; see also Austin, O'Donnell and Friis 2006); glass artist Dale Chihuly's team of craftsman (O'Donnell and Devin 2012); and the Stream Team, an agile software development group at Harvard Business School.

performing groups, typically those who have some history of working together and who share common methods and purpose (Austin 2000; Hackman 2002; Sawyer 2003, 2007; Austin and Devin 2003). In one of our Artful Making case studies, Jette Egelund, Chair of the successful Danish design company Vipp, explains how Vipp's creative team—an interdisciplinary group of six or so people—is able to innovate within the distinctive and intangible dictates of their product "DNA" by saying, "It's because we are all sitting close together in one room. And in this room, you can *feel* what is Vipp" (Egelund 2008). Other kinds of conditions may be possible, but we need to learn something more about the limits of these conditions.

Ideally, I would like us to better understand when the conditions are right (and ripe) for this approach and when they are wrong; or, alternatively, how the process of ensembling interacts with a variety of conditions. I would like to better understand what features of the work process are critical to realizing ensemble and which are more flexible, and what causes processes of ensembling to break down and at what cost. I would like to better understand how ensembling happens in natural conditions, as well as see how processes of ensembling might adapt to include conditions that go beyond its current territory. Although a complete and detailed understanding of the causal relationship between conditions and ensembling will remain an elusive ideal (for my methodological stance claims no access to this level of positivist description), studying how a group of expert performers confronted exactly these issues, and how their behaviors and expressed beliefs evolved in response, will hopefully yield deeper insights.

The research question

In order to increase our understanding of ensemble, its emergence and its limits, the question I ask, in its most general form, is this:

How do work groups ensemble?

Let's consider for a moment the research question as more indicative of intent than the methods I will later discuss (Deetz 1996: 194), by reflecting on the way in which the question mobilizes the study. "How" begs description and, better yet, understanding, of a process by which something comes into being, without excluding the potential for multiple

descriptions and understandings, or of co-occurring activities and modes. "Do" focuses the study on the doing, the performance of actions that can be observed, whether simultaneous or ordered action, planned or spontaneous. "How" engages past experiences and future aspirations in the unfolding activity, while doing locates focus on the present action. "Work" classifies the observed activity as work. With this framing, I join sociologists such as Faulkner (1971), Becker (1982), and Becker, Faulker and Kirshenblatt-Gimblett (2006), in the study of arts as work. "Groups" provides us with a unit of study. People are considered in their collective form, in relationship to one another, and in the interactions between them. Qualities of the work are often qualities that can be ascribed to the group as an expressive unit.[10] "Ensemble" here is used as a verb to focus us on the special way these groups come together to perform work. It focuses us on the parts of the doing that make this process of coming together one that generates a quality of ensemble.[11] By asking this question, I am looking for multiple ways of describing and understanding the doing involved in the processes by which work groups call the quality of ensemble into being.

THE STUDY DESIGN

To investigate this question, I studied processes of ensembling in stretched conditions. By "stretched" I mean conditions that diverge from the natural conditions in which ensemble emerges by being literally stretched apart in space, or otherwise stressed, as if the dial on work constraints were turned up. For example: group membership size increases and/or its boundaries are challenged, spatial distance increases between members and spatial configurations vary, usual modes of communication are interrupted or made more difficult, and performance conditions are less predictable than usual. These conditions, which at times I describe as "constraints", can include different circumstances and qualities of the work experience. These circumstances and qualities presumably condition, or influence/shape, the group, the doing, and the quality of ensemble they perform.

It is important to note also that the stretched conditions of this study were not imposed for the purposes of this research, but were called for by the composer in

[10] Sawyer (2003) suggests that group flow is a quality of the group, and not a quality of the individual members within the group.

[11] The word "ensemble" is commonly used as a noun and synonym for what I call here a "work group." For the sake of clarity, I will specifically avoid use of the word "ensemble" in this way.

instructions to the performing musicians, and in some cases by the concert producers who differently interpreted these instructions. This has advantages and disadvantages from a research perspective. One the one hand, performers stretched their conditions in the service of aesthetics, thus the conditions imposed were not perceived by participants as in any sense "artificial." On the other hand, because the reasons for changing conditions were aesthetically driven, and decisions about specific conditions remained within the purview of the performers (not the researcher), this study in no way constitutes a "controlled experiment" or anything like that. I could not, as a researcher, ask the performers to try something a different way, in the service of research objectives. The stretching required in the score created a sort of "natural experiment" perhaps, but my research approach should not be considered "experimentation" in any usual sense of that word.

I chose to investigate ensemble by studying it in stretched conditions as opposed to in its natural habitat with the idea that studying this phenomenon under duress might teach us something new, in terms of its endurance, stamina, critical features and conditions for success, and limitations. Stretching also helps us better prepare to transfer learning to other examples of collaborative creativity. While the conditions of the *Towards Silence* project don't offer a perfect parallel to the work of groups in distributed business settings, stretching affords us the opportunity to consider how ensemble might look in other settings, and how groups might work to achieve and be capable of achieving a quality of ensemble in their collaborations in conditions we might otherwise assume to be beyond tolerance. Because of the way in which the process happened to unfold, I had the chance to study the impact of stretching the work in one way before proceeding with the next stretch, enlarging the potential for learning. Participants didn't stretch all the conditions at once; they adapted to the increase in group size before significantly increasing spatial distance, then in the third phase of the project added configurational variability. Stretching provided opportunity to learn alongside participants, as new conditions called their usual assumptions and ways of working into question, and required their full attention and skill to address. As they engaged in this process, tacit knowledge and experience was made explicit in discussion and debate, and they became more active in generating data through increased reflection, experimentation, and evaluation.

Naturally, it helps to study groups already expert at and accustomed to ensembling in natural conditions, in order to learn more about ensembling from their process of

translating that doing expertise to stretched conditions. By investigating how they responded to changing conditions, I could observe how they experienced the difference, and learn more about the relationships between the doing of ensemble, the quality of ensemble emerging, and the context in which it happened. When experts attempt in new conditions to bring about something they already know how to do implicitly, we also have the opportunity to watch as the implicit is temporarily made explicit, as these experts are motivated to discuss how they ordinarily achieve ensemble by the fact that the changed conditions make the ordinary more difficult. We might also anticipate that ensemble will matter to how they perform their work.

To elaborate on the research question, based on the research problem, I also ask:

What's at stake for participants when constraints increase? What matters to them as they adapt to stretched conditions? Does ensemble still matter, when push-comes-to-shove?

How do usual processes of ensembling transform in relation to stretched conditions or inform new behaviors and practices?

What "breaks" (or breaks-down) processes of ensembling, and how and why does it break?

Does ensemble emerge? How do informants recognize it?

What do we learn about ensemble, and ensembling, through this exercise?

How does the participants' experience of ensemble change in these conditions, and/or how does the desire to experience ensemble change the way they do the work?

I chose to study string quartets because I am interested in better understanding the phenomenon of ensembling, and string quartets are one example of a group that most people would agree ensembles. That is, if there are any groups in the world that do ensembling, however small that subset of groups, most people would surely agree that string quartets are among these. The particular groups I study are considered by peers to be expert in their field. My decision to study live performing arts ensembles in order to relate

findings to other groups and organizations is not unprecedented. Studies of innovation often turn to the practices of artists to better understand creative processes and practices for making novel outcomes (Austin and Devin 2003, 2010; Sawyer 2003, 2007; Hackman 2002), and for new ways to think about organizing and organizational creativity (Barrett 1998; Hatch 1999). The work practices of artists have become increasingly relevant in the current competitive business environment that favors novelty-based business strategies and engages new technologies to lower the costs associated with providing novelty to customers (Austin and Devin 2010). Artists value originality, and are inherently motivated to create novelty (Austin and Devin 2003). They are expert at working iteratively towards emergent outcomes, frequently experimenting through sketches, prototypes and rehearsals, and working at the edge of their known capabilities—features increasingly common to many innovation processes across a range of industries (Austin and Devin 2003). Relevance, on this basis, has been repeatedly argued.

The timeliness of the *Towards Silence* project also factored in to this decision: here were a set of musicians, expert at ensembling, who were about to embark on an experiment to create ensemble in conditions of spatial distance and configurational variability. Neither the musicians nor the composer yet knew if it would be possible. Furthermore, having previously observed and investigated the work of project leader Paul Robertson and the Medici String Quartet (Austin and O'Donnell 2007), I had valuable background knowledge and access to informants. The nature of string quartet work presents special opportunities for understanding innovative collaboration: Precise coordination is critical to their work, so I knew that participants would need to address that difficulty in stretched conditions. At the same time, prior study tells me that string quartets don't stop at coordination. They strive for both novelty and excellence in their outcomes, and arrange their work to that end. While we might expect their work to be somewhat repetitive, given that they play from a fixed score, the documented work of expert string quartets like Medici (Austin and O'Donnell 2007) and Guarneri (Blum 1986; Steinhardt 1998) provide examples of the infinite range of interpretation and variety that scores afford and that these musicians generate by first meticulously mastering their craft and the score, then engaging unusual methods for disrupting routine. There is always a degree of improvisation and spontaneity to their work. For Guarneri, "every work is a living entity; no two performances are exactly alike. Their conceptions are always evolving" and include a "sense of spontaneous re-creation" (Blum 1986: xi-xii). Guarneri violist Michael Tree says, "Any one of us might interpret a given

phrase many times in a certain way and then play it quite differently without warning" (Blum 1986:5).

In fact, the practices of string quartets might be more relevant, in terms of transferability, to project teams in organizations than the work of more improvisational performance groups (like improvisational jazz and theatre ensembles), given that each new project they undertake presents a new aesthetic world, with its own language and structure to discern and interpret, and a different set of difficulties requiring new methods of address. Many project teams operate within rigid organizational structures, navigating some degree of fixed project parameters and resource constraints. Few experience the degree of freedom available to improvisational performers, who, for instance, in theater, might take a wild idea thrown out by an audience member and run with it, knowing they can start with a wholly different wild idea the next time they perform. If true, this suggests broader relevance for findings.

Primary case study

The *Towards Silence* project raised particular challenges for string quartet performance. In the introduction to his composition, Sir John Tavener calls for four string quartets to play together, seated in a cross formation, in a resonant building, "sounding unseen from high galleries" when possible, allowing that configurations will vary per venue. Robertson described the challenge this presents: "[Tavener has] written a score that is completely coordinated and orientated as an integrated ensemble, but then invited us, or actually demanded, apparently, that we sit apart. There's actually an essential contradiction there." To increase our understanding of the difficulty the musicians had to address to pull this off, we can consider the way in which spatial proximity impacts their work. Their ability to work together depends directly on whether they are able to hear one another in order to play in perfect time together and produce a balanced and integrated sound. Close spatial proximity becomes a crucial condition of this activity, insofar as it enables the musicians to hear as well as see corresponding visual cues. String quartets typically configure themselves at a maximum distance of about 9 feet between the two farthest members. Enlarging the size of the work group from 4 to 16 members, as Tavener did, naturally increases the distance between each member and the farthest member from them, at which point it

becomes difficult for each member to hear every other member. Stretching the groups' configuration by placing them, for instance, on the landings of a 6-level staircase or at opposite ends of a 70-foot long ballroom, as the diverse event producers did in response to Tavener's directions, increases the distance further, making it more difficult to hear, and now difficult as well to see, every other member. At a certain distance and in certain configurations, the laws of physics make it impossible for the musicians to play in time and produce a balanced and integrated sound, as their hearing becomes distorted by delays related to the time it takes sound waves to travel, further confounded by architectural barriers and echolation.

With Robertson as project leader, the string quartets addressed the project in phases, as follows: In February 2009, the UK team of quartets assembled for two days of "pre-rehearsal" of the piece, with the main objective of understanding better how to make practical preparations for and rehearse this new work, in anticipation of summer performances. In April 2009, the US team gathered at the Rubin Museum of Art in New York for five days of rehearsal culminating in one sold-out, live premiere performance. At this stage, the use of a simple coordinating technology called a "click-track," a pre-recorded cuing track delivered via wireless earpiece to one member (typically the first violinist) of each quartet, was instigated. In June and July, the UK team, implementing the click-track from the start, reassembled for four more days of rehearsals, followed by four evening performances (each preceded by 1-3 hour afternoon rehearsals in which new spatial configurations were tried) in four different locations in and around London: a meditation center, a synagogue, a cathedral and a church.

Stages of the study (in brief)

This study was carried out in stages, which I summarize here and describe in greater detail in Chapter 4. As suggested by the research problem, in order to investigate ensembling in stretched conditions, we need to understand more about ensembling itself: what it is, how it naturally occurs, and in what conditions. In the first stage, I investigate by examining recently emerging theory on ensemble and ensembling (e.g., Austin 2000, Austin and Devin 2003, Austin and Hjorth 2012, O'Donnell and Devin 2012), including concepts and theories related to other kinds of high-performing work groups (e.g., Hackman 1987, 2002; Lipman-

Blumen and Leavitt 1999, Bennis and Biederman 1997) and to group creativity (Sawyer 2003, 2007). I synthesize our understanding so far of the processes by which special groups create a collaborative quality of ensemble and suggest a tentative framework of ensembling, describing the conditions, methods, beliefs, qualities and likely outcomes related to this process.

In the second stage of the study, I engage new data in the form of informant reports and rich description of ensemble and the parts of ensembling—particularly the methods and conditions—to expose our theoretical understanding to variation and refine it, and to produce a more complex descriptive account. To do this, I use empirical material gathered during an initial phase of string quartet research conducted between 2005-2008, as part of the *Artful Making* project (Robertson 2005, 2007; O'Donnell 2005, 2006), and draw on supporting evidence from other descriptions of string quartet work (Blum 1986, Steinhardt 1999, Moritz 2005). I also generate new data by asking informants to describe prior experiences of ensemble and how their work usually proceeds in natural conditions. On the basis of this data, I propose a construct of ensemble that reflects how our expert informants conjure ensemble in virtual form and recognize its emergence. Having exposed the theoretical framework of ensembling to new evidence, I present an enhanced version that incorporates new learning.

In the third stage of the study, I explore ensembling in stretched conditions. I investigate the conditions, features and processes involved in the *Towards Silence* experiment using direct observation, supplemented by informal and semi-structured interviews, questionnaires, and various strategies for capturing visual data including videotape, drawings and spatial measurements. I conduct multiple interpretations of this data, in order to generate as much understanding of this complex phenomenon as possible. I first use an iteration-based approach to understanding how participants organized their work process, in order to make sense of their motivations, evaluative criteria, and the choices they made, and to discover how their beliefs about ensembling evolved. Then, I develop an alternative interpretation, engaging two methods of ensembling as lenses to suggest alternative movements in the work, by which participants generated new potentialities for realizing ensemble in stretched conditions. Finally, I use a comparison-based analysis of subunits within the case study to generate new insights into what "makes" and "breaks" ensembling. Learning from across these analyses informs a revision to the

framework of ensembling. I conclude by making suggestions for how this description and framework set up opportunities for exploring the occurrence of and potential for the occurrence of ensembling in other "non-natural" conditions (and hinting at a "stage four").

Research methods (in brief)

To guide the design of this study, and achieve internal consistency between the research question, prior work, the study design and theoretical contribution, I use the framework provided by Edmondson and McManus (2007: 1155). This study naturally aligns itself as "nascent," as I address a rare phenomenon and argue the need to deepen our understanding of the process by which people organize to perform this new and increasingly relevant form of collaborative work via "rich, detailed, and evocative data" (Ibid: 1162). Nascent studies call for observation, in-depth interviews, questionnaires and the like. They thrive on iterative data collection and analysis to build grounded theory, including the construction and telling of coherent stories of experience, the description of emergent variables, and the particular exploration of unexpected findings (Ibid). In keeping with this framework, my contribution includes the offer new constructs—ensemble and ensembling—and a suggestive framework that invites further investigation (Ibid:1160). Using a semi-ethnographic approach, I am also able to leverage the unique access to data provided, as well as my own prior experience as a member of a theater ensemble for understanding through observation the work of rehearsal, and for plotting compelling stories based on observation.

To generate data from the primary case, I use qualitative research methods and emphasize observation of the work as the key method for generating data, as it afforded the best opportunity for understanding the processual nature of performing collaboration. However, as ensemble is a complex and fleeting phenomenon, I used multiple methods of data collection and generation to increase learning potential. As appropriate to the case study method (Eisenhardt and Graebner 2007), I supplemented observation with interviews, document analysis, visual media such as photographs, diagrams, and spatial measurements. I designed questionnaires to generate additional data with informants, and collected over 100 hours of videotape in an effort to capture concurrent distributed activity and revisit events from different perspectives. I discuss my use of each of these methods,

and the kind of objects and phenomena they generated (Deetz 1996: 194-5), extensively in Chapter 4.

This inductive study being "highly iterative and tightly linked to data" (Eisenhardt 1989), I conducted data collection and analysis iteratively. During analysis, fieldnotes were written up in greater detail, combining insights from my field journal, interviews and informal conversations with participants. As I did this, I regularly reflected on my role in generating data. Findings increased as I applied comparative analysis between subunits embedded in the larger case study (Yin 1984, Miles and Huberman 1984): each individual and quartet at times constituted an embedded case, and the US and UK phases of the project were considered as distinct units providing different examples of how the difficulty of ensembling at a distance was addressed, and well as progressive phases of the same case, in which learning was carried over by the three consistent members into the next stage of development.

As a way to try to understand the impact of stretched conditions as they were introduced, and to organize the participants' responses to these conditions, I experimented with different ways of mapping their work. I performed an iteration-based analysis of their work process to generate understanding of how their beliefs regarding the relationship between the methods of ensembling and constraints evolved over the course of their work (see Chapter 6). I then performed an alternative analysis, using methods of ensembling as frames for understanding how participants reconceived constraints and made new acts possible. Doing so, I disrupt preliminary findings and open up the study to multiple perspectives for understanding this complex phenomenon. Writing was my primary method of analysis (Richardson 1994), and I discuss my approach to "plotting the field" extensively in Chapter 4.

KEY RESEARCH FINDINGS AND CONTRIBUTION

In this section, I offer a preview of learning from this study, including a summary of key findings and a description of the study's contribution. Since my research approach has involved observation of experts and their evolving actions and expressed beliefs, these findings are subject to the limitations inherent in such an approach, but they are nevertheless suggestive and potentially transferrable in practice. I further elaborate on the

limits of this contribution and make suggestions for further research at the end of this section, foreshadowing material in the final chapter of the thesis.

Key findings generated from data

1

Summarizing from rich descriptions of informants, I develop a construct of ensemble as follows:

> *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose. A common (but not necessary) consequence of ensemble is work that is perceived as unusual for its distinctive quality, value or power.*

I then show how this construct is supported by the study of ensembing in stretched conditions. Participants repeatedly referred to the features of the construct as criteria by which they measure the progress of their work together. They also recognized ensemble by both special qualities intrinsic to the experience and those evident in the outcomes.

2

Synthesizing theory with new data, I propose a construct of "ensembling" as the processes by which groups working in natural conditions increase the likelihood of ensemble. I develop a framework of ensembling that expresses relationships between qualities, methods, conditions, and group beliefs that factor into these processes, and the likely outcomes of this special form of collaboration.

3

I identify an interdependent set of methods experts use to ensemble (and believe increases the likelihood of ensemble). I develop our understanding of methods with which we were somewhat familiar from prior research, and discover new methods that emerged in this work process, such as a "struggle" phase, episodes of close physical proximity, "dueting" in different configurations, reconceiving constraints, living with the paradox of one-and-four,

opening the process to uncertainty and to the emergence of consent, and subliminal technology engagement.

4

By studying ensembling in stretched conditions, I am able to empirically derive an expanded range of conditions in which ensembling appears to be possible. This expanded range includes, for example: larger groups with limited-tenure consisting of enduring-tenure sub-groups, multiple task interdependencies at group and sub-group levels, spatial distribution that features a balance between proximity and distance, opportunities to work with and without technological mediation, and self-determined configuration variability.

5

I generated two ways of understanding how group member beliefs emerge, alter, and influence ensembling. As participants engaged in an iterative process of exploration to address increased constraints, their beliefs regarding which conditions, responses to conditions, and behaviors best support ensemble evolved based on an iterative process of exploration and discovery. Having evolved, they now included beliefs, for instance, that ensembling was possible in conditions of spatial distribution and in work involving the click-track. Alternatively, I also demonstrated how participant beliefs regarding what makes ensembling possible are influenced by the mid-process emergence of (sometimes unanticipated) qualities of ensemble.

6

I demonstrate that a shared purpose to ensemble mattered to participants' work in stretched conditions, and impacted their work behaviors and process. Even when participants' criteria seemed to contradict, the rationale for the criteria arose from this shared objective. The musicians generated unusual responses to stretched conditions because ensemble mattered. It operated as a tacit measure for the craft-based standard of performance, an aspiration for a level of excellence (beyond what the audience would perceive), and as such it influenced the work and evaluation of the work, particularly helping participants to navigate in moments of difficulty.

7

I also find that a shared purpose to realize the composer's vision influenced participant efforts, evaluations and decisions, and that the two shared purposes generally worked in tandem rather than in conflict with one another.

8

The shared purpose to ensemble led participants to use coordinating technology in surprising (sometimes counter-intuitive) ways that enabled them to go beyond coordination, and to recover dialogic relationality and to play. While the musicians could have directed their efforts at simply achieving a high degree of coordination, a noteworthy feat in itself given the unusual conditions of the project, they didn't stop at coordination. In fact, they repeatedly rejected efficient approaches to "merely" coordinate the work: they tried but rejected the use of a conductor as antithetical to the work task and aesthetic; they argued against the use of the click-track and delayed its implementation until they exhausted alternatives; they wanted the (inefficient) "struggle phase" of working without the technology before adding it (and missed that phase when it was not there); their approach to achieving and sustaining synchrony in their work today was best performed when it increased their autonomy, relatedness and ability to demonstrate artistic virtuosity over technical competence.

9

As another way of understanding the previous claim, I also suggest that by opening their processes to uncertainty and practicing the method of reconceiving, participants were able to transform constraints into potentialities and generate new ways of working with coordinating technology to increase their capabilities for ensembling in stretched conditions. Rather than compromising to reach closure early in the process, participants preferred to open their process to uncertainty. Out of this opening, moments emerged in which participants were able to reconceive their approaches to responding to constraints. As one example, the click-track, which was once considered a tool for military control, became in internalized pulse, subliminal to the work, supporting the emerging aesthetic and freeing participants to engage in dialogic relationality, collective leadership, and play.

10

Using the coordinating technology as they did helped these groups get better at adapting more efficiently and more creatively to new conditions. In the UK, the quartets had to solve the problem of coordination in multiple configurations, and managed to do so with increasing efficiency. Starting rehearsals in June by learning to play with the click-track helped them spend their limited rehearsal time in each performance venue—in some cases as little as 30 minutes—on discovering the unique configuration in which they could produce the most pleasing listening experience, while improvising supporting visual cues to ensure they stayed together or could recover in the event of a technical glitch or error.

11

In addition to showing those conditions, beliefs and methods that support ensembling, I generated insights into those conditions and methods that inhibit or break ensembling. These include, for example, lack of autonomy, lack of sufficient preparation or incompatible preparation styles, lack of a "struggle phase", and dependence on a dominant logic. After working to incorporate the coordinating technology into their process (and making tradeoffs to do so), when the groups were denied the opportunity at Winchester Cathedral to use their new capabilities to test themselves in more challenging conditions and push the limits of their creativity, and do their best work to realize the composer's and their own shared vision, motivation faltered and several musicians "checked-out."

Contribution

In this study, I offer a rich and nuanced account of a special form of collaborative creativity, ensembling, as a step towards addressing the need for more precise distinctions between collaborative practices. Based on observation of experts, their actions and expressed beliefs, I describe the methods and processes involved in this activity, as it happens in "normal" conditions. I generate and analyze empirical data to demonstrate, through multiple interpretations, that ensemble becomes possible in stretched conditions when special groups share the purpose to achieve this peak experience together and have the autonomy to practice and adapt the methods of ensembling dynamically, as they respond to new conditions. By remaining open to uncertainty and practicing reconceiving in response to constraints, participants become able to generate new possibilities for ensembling in conditions that otherwise appeared to make ensemble impossible. Integrating learning

from analysis and interpretation, I propose a new range of conditions in which ensembling is possible, and a revised and expanded description of the methods by which groups ensemble. Ultimately, these groups demonstrated an increasing ability to adapt to new conditions faster and more creatively, making new configurations possible, and suggesting ways in which ensemble might be performed in other kinds of group settings.

The *Towards Silence* "natural experiment" suggests that it is possible to ensemble in conditions of spatial distance and configurational variability, opening new possibilities for how we perform and study group creative collaboration in distributed conditions. With a clearer framework for understanding one distinct form of collaboration, ensembling, which I suggest defines an extreme end, we can pursue further work on describing alternative forms of group-level collaboration that succeed at meeting different criteria towards a different purpose. I offer methodological tools and frames for use in future study. These tools include the construct of ensemble and a framework of ensembling, as well as analytic frames employed, such as the methods of reconceiving and openness to uncertainty. They are meant to serve future research that aspires to further enrich our yet nascent understanding of this complex phenomenon and to aid in the exploration of ensembling in contexts outside the usual places we expect it to occur. I offer these tools with the intent that they be extended, critiqued and revised by myself and others. I hope also that they help us build further tools to better understand and describe, in rich detail, the diverse collaborative group practices emerging.

I offer a contribution to practice as well. By developing more detailed descriptions of methods and processes for ensembling, I call attention to multiple possible movements, both evident and latent in the work of other kinds of creative groups. I do so in the hopes of bringing those movements to the attention of those in positions to create the conditions for more of such activity to develop. By developing the concept of ensembling as a distinct process of collaborative creativity, I provide more precise language, tools and understanding by which those organizing such processes can better structure, practice, and lead/manage the work. By describing the emergence of a new method for ensembling, "subliminal technology engagement", I hope to open up new possibilities for considering how teams might engage with technology to address the important difficulty of coordination in ways that increase their autonomy, relatedness and ability to demonstrate artistic/creative competence, as well as increasing their likelihood creating special

outcomes. I provide advice for management, and suggest avenues for applying learning to practice in settings beyond the scope of where we might normally expect to find, and foster, ensembling.

The limits of this contribution & Looking forward

In the conclusion to this thesis (Chapter 9), I discuss the limits of this contribution, acknowledging the ways in which my study design and processes of interpretation constrain findings. I made, for instance, a decision to take a broad approach to addressing a full set of methods and conditions for ensembling, meaning that I left some (important) arguments underserved. My exploration of the role of external leadership and the practice of collective leadership need a deeper look. The case itself limits what understanding I could generate: participants were just beginning to develop capabilities for ensembling as a larger group, and the project wasn't designed to test maximum constraints in service to my "stretch" study, so my understanding of the limits of conditions for ensembling are limited. While I believe learning is transferable to other contexts in which collaborative creativity is performed by groups, locating my study of ensembling in the context of string quartet performance may have led me to generate too narrow a description of ensembling and it's parts. These limitations, and others I describe in the conclusion, need to be addressed in future study.

I follow my discussion of limitations by offering suggestions for further research. These include suggestions for investigating the phenomenon of ensemble and the methods of ensembling through a multiplicity of approaches to enrich our understanding. I offer the analytic tools developed in this study to future investigations of collaborative creativity in natural or non-natural conditions. I also make recommendations for improving the suggested framework. Given that this study of ensembling in stretched conditions gave us a preliminary look at how it might be performed in other "non-natural" conditions, I also make suggestions for exploring the phenomenon of ensemble in conditions of geographic distribution, configurational diversity, networks, and virtual environments, as well as in alternative fields. I outline an agenda for a multi-case study addressing these suggestions.

This study imagines itself as a step towards a larger, multi-case exploration of ensemble in distributed and digitized conditions, and in groups of the diverse variety suggested by Wageman et al (2012). Next steps involve elaborating and improving representations of ensemble in new case studies and new conditions, to learn how this form of peak performance experience is relevant to and realized by other kinds of teams, how the process transforms in the face of new conditions (what new features, like a struggle phase or subliminal technology engagement, emerge), and to discover at what point conditions stretch beyond what methods can bear, and ensemble becomes no longer possible. At this point we learn what alternative, "lesser" form of collaboration emerges to be more clearly described. Along the way, such research stands to contribute a wealth of rich description, and suggest to groups aspiring to creativity in stretched conditions ways in which they can succeed at performing ensemble.

WHAT TO EXPECT IN THIS THESIS, A READER'S GUIDE

Now that you know where we're heading in this thesis, let's survey the territory that will take us there. In this section, I outline the progression of theory, empirical description, analysis and discussion that leads to the findings and contribution above: in other words, the chapters.

Chapter 1: Introduction

This chapter introduced the primary dilemma in the case study, beginning with a narrative constructed from fieldwork. I described the study and the motivations informing it, including issues raised by current research and practice to which I aim to contribute understanding. I described the research problem and question, focusing this investigation on the phenomenon of ensemble and explaining reasons for studying it in stretched conditions. I then briefly addressed the study design, in terms of how it is organized and what methods are engaged. Finally, I summarized the findings and contribution of this study, and provided the reader with a guide for navigating the remainder of the thesis.

Read this to get an overview of the study and its context, and a compelling argument for its relevance to research and practice.

Chapter 2: Theory

In the second chapter, I first review the richness and limitations of what we know and how we've studied collaborative creativity in small, high-performing groups in natural conditions. I discuss how our uses of the words "collaboration" and "creativity" create difficulties for us in achieving the degree of specificity we need to understand this activity. Then, I describe how collaborative (possibly high-performing) teams are being studied in digitized and distributed conditions, underscoring recent calls for new research that challenges the constructs, theories and methods that have been traditionally used to study bounded teams. I pay particular attention to how our current understanding leads us to expect that certain factors enable collaborative creativity while others cause collaboration and creativity to break down, in anticipation of my study of collaboration in stretched conditions. I then hone in on that "most special" form of collaboration, ensembling, and analyze recently emerging theory and empirical studies. I use what we know so far about this phenomenon to build a suggested framework of ensembling, then point out questions this framework raises and gaps in our understanding so far.

Read this to get your bearings on what we know so far and what we need to know next in order to increase our understanding of special forms of collaborative creativity in high performing teams, particularly the form of ensembling.

Chapter 3: Empirical Setting and Case

In this chapter, I provide readers with contextual and background material to prepare them to step into the world of the musicians I studied, then take them on a journey through the life of the performing arts project that serves as the primary case in this study. I describe string quartets, their training, careers and organizational structure, and discuss the ways in which they usually work. I provide background on the origins and development of the *Towards Silence* composition and project, including information about key participants. Then I describe the phases of development and work that went into making a series of

concerts in the US and UK, the rehearsal and performance of which challenged usual form and methods for creating string quartet music.

> Read this to learn about the work of string quartet musicians and the unprecedented performing arts experiment that figures as the primary case in this study.

Chapter 4: Method and Methodology

Next, I present my research methods and methodology, relating what I did to generate and analyze data and explaining why I did it that way. I describe how I designed the study in stages to address the research problem discussed in this Introduction, and include the methodological considerations and frameworks that I used to guide my research design and analysis. I provide detailed description of my methods for data generation, which included a special combination of fieldwork, video recording, interviews, questionnaires, diagrams, measurements and participation. Then I discuss my methods for analysis, including some unusual strategies I employed such as "plotting the field" and "destroying" findings to restore richness. I also reflect on how my prior training and professional experience in the performing arts influenced not only my initial interest in studying ensemble, but also how I observed and understood the work of the performing artists I studied and plotted findings. Finally, I provide my argument for verification and conclude by addressing the limits of the choices I made.

> Read this to learn how I designed this study and conducted data generation and analysis, drawing on unique resources available from prior research and arts-based experiences.

Chapter 5: Ensemble

In this chapter, I use new data to develop our understanding of ensemble and ensembling as these phenomena occur in natural conditions. In the first section, I develop a construct of ensemble based on how informants experience and recognize this emergent quality, to

distinguish what they mean (and I mean) by *ensemble* in this study. I then generate additional description of the methods of ensembling (some not accounted for in theory) that informants practice in natural conditions, based on their reports and demonstrations. I also investigate the conditions that informants believe support or inhibit ensembling. I compare new learning to the theoretical framework of ensembling I generated in Chapter 2, exposing that framework to elaboration, divergence and new insights. This discussion and elaborated framework help us to understand participant expectations and perceptions related to ensembling, as we prepare to consider their work in stretched conditions.

> Read this to learn how our primary case participants experience and describe ensemble, and how they perform ensembling in natural conditions.

Chapter 6: "Playing in Time": An iteration-based approach to investigating ensemble in stretched conditions

Moving into analysis of the primary case study, I present my iteration-based interpretation of the processes by which project participants made ensemble possible in stretched conditions. Drawing on the case story presented in Chapter 3 and additional case data, I describe how participants explored strategies for addressing changing work constraints, and how their efforts and evaluations revealed their evolving beliefs about which responses would make ensemble more likely to occur. In each iteration, participants responded to different changes in conditions, including an increase in group size and change in group tenure, increased task complexity, an increase in spatial distance between members, and the introduction of configurational variability. I look at what responses participants suggested and tried, what happened in those trials, how they evaluated suggestions and efforts, and how they decided what to do next. I depict these efforts in a series of narrative episodes and figurative diagrams, each representing an iteration in the larger work process. While the theoretical framework of ensembling remains in the background, I prioritize observation and interpretation over prior theorizing (Eisenhardt 1989) in order to understand how the musicians perceived relationships between constraints, actions or behaviors, and outcomes. I propose those relationships as one way of understanding the emergence of ensemble.

In this analysis, I find that a shared purpose to ensemble and a shared purpose to realize the composer's vision influenced participant efforts and evaluation of progress. At the same time, as participants approached the work iteratively, their expectations were frequently surprised. Their beliefs regarding the use of a coordinating technology as well as the impact of the condition of spatial distance shifted most dramatically, from considering both to be antithetical to ensembling, to considering both to be critical. As their beliefs evolved, they modified some of their usual work methods and developed new methods for ensembling in stretched conditions: new methods included the "struggle phase", episodes of close physical proximity and a "subliminal" approach to working with a coordinating technology.

> Read this to understand how participants responded to increased constraint in their work, challenging and altering both their work practices and beliefs about what makes ensembling more likely to occur.

Chapter 7: "Destroying the Music": Making new conversations and capabilities possible

In the second main analytic chapter, I propose a different interpretive approach to generating findings from data, in order to disrupt and destabilize my first iteration findings and have a new conversation on how ensemble was made possible in stretched conditions. I use two key methods of ensembling described by theory as frames for interpreting participant actions: openness to uncertainty and reconceiving. I explore episodes in which I observed participants (1) delay closure in favor of keeping their work process open to uncertainty and (2) make use of that opening to create new ways of thinking about their work constraints and activities that generated alternative potentialities. I then describe how these two activities enabled participants to invent new responses to constraints and to engage in work that increased their autonomy, competence and relatedness.

With this analysis, I expose my still nascent and emerging understanding of the complex phenomenon of ensemble to alternative ideas and interpretations. For instance, I offer an alternative understanding of how participant beliefs changed during the process, suggesting that events of ensemble, play, collective leadership and subliminal technology engagement altered member beliefs about what *could become* possible in their ongoing work together, even when it contradicted their prior expectations. While this interpretation

suggests a counter-movement to the iterative process of trystorming I presented in Chapter 6, I do not see them as contradictory. I believe participants both ordered their work as a series of iterative explorations to address difficulties, *and* cultivated spaces of uncertainty to generate alternative, unforeseen possibilities. I present these two interpretations to be considered together to increase understanding.

> Read this to explore an alternative interpretation of how ensemble was made possible in stretched conditions, one that restores the richness of uncertainty, creativity and unpredictability to the process.

Chapter 8: Making and Breaking Ensemble

In this chapter, I look into case phenomena to consider what appears to "make" ensemble possible and what seems to "break" ensemble, given stretched conditions. I introduce new examples from case data, in some cases subplots to my primary narrative, such as stories exploring what happened when processes of ensembling broke down or suffered along the way, and what ancillary concerns emerged. I generate findings through comparison of subunits embedded in the case study. First, I consider each participant as a unit of study, and compare differing perceptions of ensemble as four voices or entities, one blended voice or force of expression, or both, in order to generate understanding of the paradox of ensemble as four-AND-one. Next, I compare the US and UK phases of the project in order to understand why the first suffered less breakage (and a higher degree of perceived success) than the second. Finally, I compare two UK performance events, the Synagogue and the Cathedral, in order to better understand why one concert was generally perceived a failure to ensemble while the other a success of ensemble. I summarize findings as I go, and point out the ways in which participants' reflection on what makes and breaks ensemble activated the construct of ensemble (proposed in Chapter 5) as criteria for evaluation.

> Read this to gain insights into the methods and conditions that appear to "make" and to "break" processes of ensembling, and to learn how participants activate the features of the construct of ensemble as criteria to evaluate their progress.

Chapter 9: Implications and Conclusion

In the final chapter, I circle back to revisit the framework of ensembling, enhanced in Chapter 5, to suggest extension and revision that incorporates new learning. I focus in particular on expanding what we know about the methods of ensembling and the range of conditions in which ensembling appears to be possible, on the basis of this study; I present these findings in the form of two Tables: a Table of Methods and a Table of Conditions. I compare the analytical approaches I took in Chapters 6-8 and discuss how these interpretations, when considered together, increase our understanding and invite further multiplicity into our yet nascent study of ensemble. I then discuss the theoretical implications of this research and the contribution I offer, as well as implications for practice. Introducing a new story of ensembling, from data, I suggest yet another perspective in order to remind us to stay open to new potentialities. This leads to a reflection on the limitations of this study, as a way to invite future study. Finally, I use contribution and critique as a springboard to propose possible avenues for future research, including recommendations for exploring transferability of new understanding to other contexts.

> Read this to reflect on and critique this study, to relate findings to ongoing research and practice, to explore future opportunities for further investigation of ensemble, and to experience closure.

CONCLUSION

In this section, I introduced the study and made my initial arguments for its relevance, given that the opportunity for studying and practicing collaborative creativity increasingly exists, and we have a lot of work to do to catch up on refining our understanding of how processes of collaborative creativity are performed in diverse conditions and in differing forms. Based on my introduction of the research problem and question, the study design, a summation of key findings and an outline of what's to come, I hope the reader feels well prepared to proceed with me into the next chapter. In Chapter 2, I explore the current state of what we know and have yet to know about performing collaborative creativity in groups, including how group creativity interacts with conditions, and what we understand so far about the special form of group creativity called ensembling.

Chapter 2. THEORY

I begin investigating my research question "How do work groups ensemble?" by first looking to existing studies of small, high-performing groups that practice collaborative creativity, including those that ensemble, to assess what we already know. I'll refer to these groups from here out as "special groups" to begin to distinguish them from groups whose work is not necessarily highly interdependent or creative (i.e., designed to generate novel outcomes). The work of special groups matters; organizations frequently look to groups to address innovation and related performance objectives (Edmondson 1999, 2012). When they function well, these groups create outcomes that are novel and achieve a high standard of excellence (Hackman 1990, Austin and Devin 2003, Sawyer 2007, O'Donnell and Devin 2012), whether that excellence is determined by the group's own professional standards (Lipman-Blumen and Leavitt 1999; Austin and Devin 2003) the field in which they work (Becker 1982), or their clients' satisfaction (Hackman 1987, 2002).

Practitioners and researchers invested in improving the performance of special groups strive to find the best methods for organizing and leading them, allocating resources and adjusting conditions of the work, designing the work task or process, influencing the quality of interaction between group members, enhancing motivation, and otherwise supporting creativity. These efforts at understanding how to enhance group performance become more challenging as globalization and digitization impact the ways in which people team up and design their work to suit diverse and dynamic conditions. Our understanding of what constitutes a group or team and the purposes and performance standards of teams change as new forms of teams emerge (Wageman et al 2012). This presents a difficulty, challenging practitioners and researchers to keep up with emerging practices and possibilities and to revisit the ways in which we've framed prior understanding (Wageman et al 2012).

There is another difficulty. Even as the kinds of groups performing creative and innovative work are increasing, and the range of examples of collaborative work likewise expand, we still label much of what groups do with the poorly defined word "collaboration." We already lack sufficient distinctions between the many different types and processes of collaboration being performed in what have traditionally been considered "natural" conditions (bounded group membership and co-located conditions involving close physical proximity), and we are at risk of worsening this situation as conditions diversify. As groups spontaneously respond in new ways to dynamic work environments and technologies, we

have much work ahead to keep up with understanding how their collaborative processes change, and how they can be differentiated from other kinds of group processes, so that we can continue to increase our capabilities for providing suitable methods for organizing, leading, designing and supporting such work.

Some researchers have honed in on specialized forms of collaboration. Sawyer (2003, 2007) describes the particular ways in which improvisational groups in jazz and theatre perform "group creativity." Using his background in psychology and improvisational performance as his entre into the topic, Sawyer describes improvisational group work that depends on a high degree of interactional synchrony between members (2005), and leads towards emergent outcomes greater than the sum of individual contributions as group members build on the ideas of others (2003, 2007). Based on investigation into and experience with the work of scripted theatre performance, as well as, importantly, the work of groups in creative (typically, but not limited to design) firms, another group of researchers have introduced to innovation and entrepreneurship studies a special form of group collaboration they call ensemble, or ensembling (Austin & Devin 2003, Austin & Hjorth 2012, O'Donnell and Devin 2012). Ensembling describes an extreme form of group work that depends on a highly attuned (Austin and O'Donnell 2007), conversational form of collaboration (Austin and Hjorth 2012), during which members of the group continuously open up to the contributions of others and use these materials along with their own ideas to reconceive the emerging outcome (Austin and Devin 2003, Austin and Hjorth 2012), relinquishing sovereignty over that outcome in the interest of creating something truly special (Austin and Devin 2003). Austin and Devin (2003) call the special quality that emerges from this kind of collaborative work "ensemble." While ensembling shares similarities with Sawyer's concept of "group creativity", there are also important conceptual and empirical differences to explore, which I (and the researchers just mentioned) believe renders it worthy of it's own investigation.

Ensemble might seem an odd concept to discuss in partnership with distributed group work, though I suggest we consider ensemble as possibly relevant to work in other contexts until research demonstrates otherwise. As argued by Wageman et al (2012), the nature of group work is multiplying at an accelerating pace; new forms emerge rapidly. Spaces are being created by technologies that enable more open and synchronous exchange of ideas between collaborators who might otherwise have carried out their tasks

independently. As just one example, Boland et al (2007) demonstrated how architect Frank Gehry's adoption of digital 3-D representations in construction projects created wakes of innovation out of an "intense level of continuous collaboration and invention" (638) that implicated multiple industry partners. Participants were able to achieve a degree of interaction that enabled them to "continually redefine and mutually adjust their relationships" (Ibid: 640). Such technologies increasingly enable more interdependent, interactional collaboration to happen, spawning innovation potential where none was prior. Ensembling might be one possible form of collaborative creativity that could be performed in this technology-mediated space, even while group members are separated by geographical distances, though at present what we know about ensembling and many other forms of high-performance group work suggests dependence on a more narrow set of conditions, such as close physical proximity and a high degree of synchronicity.

In order to consider how ensemble might be made possible in distributed, virtual, or otherwise digitized conditions, we need to develop our understanding of how processes of collaborative creativity interact with conditions: which conditions seem critical to its success and which inhibit it from becoming, as well as how changes in conditions cause new processes and behaviors to emerge. Enhanced understanding of what inhibits ensemble's becoming in distributed, virtual, or otherwise stretched or strained conditions may also, in turn, provide insights into the fundamental nature of ensemble in more "natural" conditions (seeing what causes something to "break" tells us something about its points of strength and weakness). By synthesizing what we know (and still need to know) about the process of ensembling, we can begin to build this knowledge into a coherent construct, defining one example of an "extreme" form of collaboration that opens the space for us to pursue deeper understanding of the phenomenon and how it interacts with conditions, while inviting others to continue the work of differentiating between multiple forms of collaborative group work, "extreme" or other.

This theoretical discussion has three parts. In the first part, I review the richness and limitations of what we know and how we've studied collaborative creativity in small, high performing groups, typically focused on bounded groups working in co-located conditions. I discuss how our uses of the words "collaboration" and "creativity" create difficulties for us in achieving the degree of specificity we need to understand this activity. Then, in the

second part, I describe how collaborative (possibly high-performing) groups are being studied in digitized and distributed conditions, underscoring recent calls for new research that challenges the constructs, theories and methods that have been traditionally used to study bounded groups. Across these parts, I pay particular attention to what we expect to be critical to the success of collaboration and creativity in special groups, and what we expect will inhibit its becoming, or cause it to break down, in anticipation of my study of ensembling in stretched conditions. In the third part, I hone in on that "most special" form of collaboration, ensembling, analyzing recently emerging theoretical and empirical studies to see how I am able, so far, to answer my research question "How do work groups ensemble?" I use what we know so far about this phenomenon to build a suggested framework of ensembling, then point out the questions this framework raises and the gaps in our understanding that I will endeavor to address in this thesis.

COLLABORATIVE CREATIVITY IN SMALL, HIGH-PERFORMING GROUPS

I begin in this section with a discussion of how high performing groups have been described and studied, which has included an emphasis on the role external leaders play on managing conditions to increase group performance. Another body of research has emerged, that studies the ways in which groups manage their own conditions and performance, practicing leadership that is described as either shared, distributed, or collective. I suggest the specific groups I study are an example of the later. I then discuss how "collaboration" and "creativity" are usually described and studied, and how live performing teams have been frequently used as a preferred example of those activities. Then, I address how the way in which we've studied groups has shaped the kinds of things we can learn about them, before reviewing "findings" across these different research approaches to synthesize what we know about what seems to enable, or "make" collaborative creativity possible, and what disables, or "breaks" collaborative creativity.

How high performing groups are described and studied

Work groups in general have traditionally been described by bounded and stable membership and engagement in tasks designed for varying degrees of interdependency

towards a common purpose (Hackman 2002; Kozlowski and Ilgen 2006), though that definition is being challenged by new kinds of teams emerging in the digital age (Wageman et al 2012). *High-performing* work groups are those that actively shape and repeatedly exceed expectations for output, increase their collective capabilities together over time, and contribute to the well being and personal development of group members (Hackman 2002: 25-28). Performance studies of these groups largely direct our attention to contextual conditions as they increase the likelihood of success—conditions such as group size and composition, task design and appropriate management of conditions to support interpersonal risk-taking, learning, creativity, and motivation (Catmull 2008, Hackman 2002, Amabile 1996, Wageman 1995, Edmondson 1999). Recommendations for group composition alternately focus on achieving the right degree of heterogeneity in order to bring diverse expertise and multiple perspectives to bear on a problem (Nussbaum 2004) and the right degree of homogeneity in order to reduce barriers to communication (Lipman-Blumen and Leavitt 1999, Sawyer 2007) and to benefit from shared mental models (Salas et al 2005) and shared knowledge (Sawyer 2003). Structurally interdependent task design is understood to be one of the most powerful known drivers of collaborative behavior (Wageman et al 2012; Wageman 1995; Kozlowski and Ilgen 2006). Shifting focus from structural to interpersonal factors, Edmondson's (1999) investigation of effective team learning argues the importance of creating conditions for group members to experience psychological safety in their work together. This body of research assumes that the work of traditional teams is organized by a leader or manager, often external to that team, who is responsible to and has the authority to influence team effectiveness (Wageman et al 2012). It emphasizes conditions, which can be artfully manipulated by such a leader to increase group performance (Hackman 2002, 2012).

Leadership, and the role of the leader, is a popular focus in the studies in high performing creative groups (Bennis and Biederman 1997, Amabile and Khaire 2008, Amabile et al 2004). Stories of great groups, such as the animation teams at Pixar and Disney (Catmull 2008, Bennis and Biederman 1997), interestingly eschew study of these groups' interactions and processes, and instead outline lessons for leaders on organizational support: how to assemble great groups, empower experts to make decisions, set ambitious goals, free up communication, and craft learning environments. Sawyer (2003) argues that group dynamics receive less attention as they are simply more challenging to study than, for instance, the influence of an individual's behaviors and actions

on group performance. While arguing that external leadership plays an important role in facilitating effective teamwork, Hackman (2002) critiques the notion that a team leader, via his or her vision, action and behaviors, directly determines team behavior and performance, and again emphasizes the leader's role in creating and maintaining the *conditions* in which teams become more effective over time. Salazar (2002) suggests there are ways in which leaders can influence group context dynamically, "*as it unfolds through interaction",* by "amplifying perturbations" to increase instability. This "generative mechanism" helps group members to embrace opposing viewpoints, consider minority arguments, and better enable the emergence of creativity (196).

Wageman et al (2012) suggest that as team structures evolve in new (i.e., digitalized, globalized) contexts, team members themselves are increasingly determining the conditions in which they work, rather than depending upon an external authority, though "little is known about how leadership functions are fulfilled in the absence of existing work and authority structures" (Ibid:11). Researchers who study self-managed teams (SMTs), suggest this organizational form increases the likelihood of innovative behavior and outcome. SMTs assume responsibility for both performing work and monitoring their own performance, and exert more control over their immediate work environment (Cohen, Chang and Ledford 1997). They often determine what they will do, and how they will go about doing it. Muthusamy et al (2005) find that members of SMTs "foster greater autonomy, increase communication among team members, and intensify their commitment to the team and the organization, which in turn enhances innovative behaviors" (1). Others consider effective team self-management impossible unless someone in authority, whether internal or external to the team, sets the direction for the team's work (Hackman 2002; Wageman and Hackman 2010). Morgeson (2005) suggests that some degree of intervention from an external leader, preferably one who is well prepared and restricts involvement, may enhance SMT effectiveness. External leaders might, for instance, intervene to manage team boundaries, make key decisions, and handle crises. However, in the case of groups who manage their own work processes and conditions with no support from an external leader, more needs to be understood about how they enact leadership, manage their own crises, and manipulate conditions to enhance performance.

Collective, or shared, leadership in groups has been argued to be particularly effective in dynamic conditions. Shared leadership in organizational studies is defined by

Carson, et al. (2007) as "an emergent team property that results from the distribution of leadership influence across multiple team members" (1218). Team members engage in influencing activities similar to those roles described for individual leaders, such as directing, motivating and supporting (Carson et al 2007: 1219; Hackman 2002). While shared leadership is a team phenomenon, distributed leadership (Ancona and Bresman 2007; Ancona and Backman 2010) describes leadership functions as distributed throughout an organizational structure, with the result that more people "engage proactively and collaboratively to create change" (Ancona and Backman 2010) that is aligned with organizational goals. Shared or distributed leadership emerges spontaneously in response to such things as complexity and ambiguity of the work task, work pace, the desire for autonomy in knowledge work, and uncertainty in the business environment, and it operates in relationship to the kinds of distributed work processes enabled by improved IT (Carson et al. 2007; Ancona and Backman 2010; Ancona and Bresman 2007). Shared leadership, this research demonstrates, improves team performance and contributes to a firm's competitive advantage (Carson et al 2007, Katz and Kahn 1978). Klein et al (2006) add that by practicing dynamic delegation of leadership, "extreme action teams" like medical teams at emergency trauma centers enhances their ability to provide reliable performance in high-stakes conditions, even as membership changes frequently.

The groups I study in my primary case, string quartets, for instance, provide a comparatively extreme example of SMTs that practice shared leadership. Gilboa and Tal-Shmotkin (2012) demonstrated in their comparison of string quartets to SMTs that the former demonstrates an even higher degree of pluralistic working patterns than the latter (33). String quartets determine what work they will do and how they will do it, manage their own resources, and handle their own crises, and do so without the support of an external leader. Quartets such as the Medici and Guarneri quartets (Austin and O'Donnell 2007, Blum 1986, Steinhardt 1999) oppose the direction of a single leader, whether internal or external to the group, and prefer engaging equally in leadership activities. They choose to participate in a string quartet as opposed to an orchestra for this reason, valuing the autonomy and self-expression it affords (Faulkner 1971). They consider shared or collective leadership to be vital to creating and sustaining a dynamic conversation between four voices (Blum 1986). They therefore offer an example of work groups that manage their own responses to changing conditions and enact leadership in ways we wish to better understand.

How collaboration and creativity are described and studied

In Chapter 1, I provided an illustration of how the use of the word "collaboration" is too underspecified to help us describe work processes with enough differentiation to support understanding. I compared two "collaborations": group work processes that we might expect to share more similarity, being that both examples were taken from the arts (the work of an animation team and the work of a glass sculpting team), but that were in fact designed to produce very different kinds of outcomes for different purposes, and involved very different approaches to leadership and management.

Rosen (2007) presents this definitional problem, citing Wikipedia: "collaboration refers abstractly to all processes wherein people work together"—indeed, abstract—then offers The Oxford English Dictionary definition of collaboration as "united labour, co-operation…" (8)—also vague. In the second definition, co-operation is offered as a synonym to collaboration; *two* activities that can manifest differently. Rosen then claims to make an improvement to our definition of understanding by declaring the "death of distance" which once required collaboration to be dependent on co-location (a detail we might welcome, but one that is evident in neither of the definitions above). He offers the following definition instead: "Working together to create value while sharing virtual or physical space" (9). Rosen adds outcome criteria and expands the range of conditions in which collaboration can occur, but still we have no idea what kind of "work" and what form of "togetherness" are involved in this activity. Though he sets out to elaborate on the cultural elements critical to performing this underspecified activity. This kind of definitional looseness is evident again and again.

Hackman (2002) helps us out by differentiating between groups that are "co-acting"—whose work outcomes are not dependent on the work of others—and those groups that are "real" teams. Again, we circle back to determining the kind of group activity we are meant to study or enact based on the degree of task interdependence, a helpful guide, yet still only one factor in what is presumably (if we take the glass and animation teams as examples) a complex process involving multiple differential factors—and a factor that is becoming problematized in recent studies of group work. Researchers often refer to Thompson's (old) typology of pooled, sequential and reciprocal task interdependence

(1967)[12], again, somewhat helpful. Yet Thompson proposed these hierarchies to differentiate between kinds of *coordination* required to perform a work task, not kinds of *collaboration*. Studies of "collaboration" in groups continue to span a range of team-like activities, including those perhaps better described as "co-acting", or "coordinated", while rarely achieving greater precision. To confound the problem of using Thompson's and related typologies, "interdependence" as a construct has become more dynamic in new work conditions. Wageman et al (2012) suggest we need to differentiate between types of interdependence that go beyond structural, to include, for instance, behavioral interdependence—"the degree to which group members actually work *together*" aside from how their task is designed—as well (7). They also critique the static way we usually consider interdependence, suggesting that it "can unfold in non-obvious ways and may well change over a team's life" (Wageman et al 2012: 6; citing Kim and McFee 2012). Interdependence, as the primary differentiator of the type of collaborative activity in which we are supposed to understand groups are engaging is not only too limited a descriptor, but the degree in which it can accurately reflect practice is being called into question.

Use of the word "creativity" likewise causes us difficulty when studying the work of groups. Group and process dynamics are rarely emphasized in studies of group creativity, though more recent work is reversing this trend. The individual has often been in focus in studies of creativity, even when that creativity happens in the context of group work (e.g., Amabile 1996, Csikszentmihalyi 1990). Studies of creativity in groups tend to emphasize procedures and methods of interaction between group members and the content of their communication with one another, and how organizational environment facilitate or inhibit group creativity (Salazar 2002: 182). Sawyer (2003) attributes this tendency to study individuals, procedures and organizational context to the fact that group dynamics are simply more challenging to study. Salazar (2002) advocates for a complexity approach to studying group creativity. He defines creativity as "a communicatively constituted and emergent process through which a group produces novel and relevant ideas, responses, processes, or products" (2002: 181). He sets forth a research agenda that emphasizes of the role of communication in group creativity and how structural features of the work that constrain and enable collaborative creativity are constituted and changed (Ibid: 183), without necessarily saying whether we should look at how those features are constrained

[12] Even Murnighan and Conlon (1991), studying string quartets, rely on Thompson's typology to clarify their work together as reciprocal.

or enabled by external influence (such as a leader or manager) or actions of group members themselves. Nonetheless, he and Sawyer both call for the need to investigate processes of interaction between members and interaction between groups and the conditions of their work, to learn more about how collaborative creativity is effectively performed.

Understanding what is meant by "creativity" also becomes a source of difficulty for studying collective creativity, though some studies help by shifting the locus of "creativity" from the outcome to the activity of generating it. Becker argues that "creativity" is an honorific people assign to an object, action or idea as a way to express approval, to recognize the specialness we perceive in these things—a judgment that is itself made within a social context and based on comparison with other objects, actions and ideas—rather than a feature intrinsic to the thing itself (Becker 2013). In her study of the contextual factors influencing individual creativity, Amabile (1996) bases her theoretical framework of creativity on the following conceptual definition:

> A product or response will be judged as creative to the extent that (a) it is both a novel and appropriate, useful, correct or valuable response to the task at hand, and (b) the task is heuristic rather than algorithmic (35).

According to this definition, creativity is determined based on both qualities of the outcome and the process by which it is achieved, here distinguished as a task with an unidentified path to the solution; the maker must determine how to address the problem. Makers may often be in a position as well to determine the goal of the task, or to design the problem to be addressed (Ibid: 35-36). Sawyer suggests that when studying "group creativity", the process (Amabile's "b") that generates creative outcome (Amabile's "a") is in central focus. While some creative processes are interesting for how they generate creative outcomes, in many creative domains, the process *is* the product (Sawyer 2003: Chapter 1). The process of generating a live performance or providing a live service is its own goal. This becomes particularly relevant to the study of collaborative innovation in industries where the value of the outcome is based on how well it evolves and adapts to the needs of users over time, such as strategic identity design (Austin, O'Donnell and Friis 2006), or the design of innovative education systems or care facilities (e.g., Pilloton 2010, Brown 2008), and, naturally, in the performing arts. In these instances, the interactional processes of people engaged in the making, and remaking, of special outcomes, takes center stage. How we

assess creativity may continue to be problematic, but what we are studying when we study "creativity" in group work becomes more clear with this framing.

Why we look to the performing arts to better understand collaborative creativity

Researchers have argued the value of looking to the practices of arts ensembles and other live performing teams for "extreme" examples of effective group creativity and performance on the basis that the actions of teams performing in real time experience immediate feedback, to enhance learning and speed up innovation processes, and immediate consequences (Hackman 2002, Sawyer 2003, Barrett 1998). Studies of arts ensembles typically focus on those that are highly improvisational in form, such as jazz and improvisational theatre groups (Sawyer 2007, 2003, Hatch 1999, Barrett 1998, Weick 1990), considering that feature of the work critical to drawing fruitful parallels to innovation and organization in business contexts. Musical ensembles such as orchestras, while studied for examples of leadership (even when "leaderless", such as the Orpheus Chamber Orchestra; de Gonzalvez and Lehman 2002), are considered due to their work with scored material to be too limited in the degree of ambiguity they experience and innovation they produce (Barrett 1998), a claim our data will challenge in this thesis. Studies of improvisational teams emphasize features of group work that enable emergent innovation, such as balance between structure and freedom, ambiguity and unpredictability, rhythmic and synchronous interaction, complex systems of communication, emotional and empathetic engagement, intense interpersonal relationships and intersubjectivity (Sawyer 2003, Barrett 1998, Hatch 1999).

How the study of *groups* changes how we study

As we move from the study of individual leaders to groups that share leadership, as well as from studies of individual creativity to collective creativity (Salazar 2002), several shifts occur in *how* we study. An emerging body of research that studies collective processes of cognition and creativity, whether in co-located or distributed conditions, suggests alternative routes to understanding how people organize for and enact work together that are *social* and *processual*. In these studies, collective knowing and practice are complex and

socially embedded processes requiring ongoing enactment (Hutchins 1995, Orlikowski 2002, Giddens 1984). Conditions of the work are inherently unstable. Properties of the group are not predictable from or inherent in properties of individuals constituting the group, so studies cannot be reduced to the sum of individuals. By investigating how teams solve collective cognitive tasks, for example, Hutchins shows how groups accumulate bodies of knowledge that are greater than the sum of collected individuals (1995). Sawyer (2003) similarly argues that groups of people can experience flow in their work (or play) together, regardless of whether individuals within the group experience the individual state of consciousness described as flow (Csikszentmihalyi 1990). Flow emerges as a property of the group.

Hackman (2012) argues that groups should be studied as social systems, dynamically engaged in context. Researchers applying a process-oriented approach to studies of group creativity focus on relationships rather than individuals (Steyaert 2007; van der Haar and Hosking 2004; Hjorth and Johannisson 2003), and on the continual emergence of the new as a result of the situated, corporeal, social and creative nature of human action (Joas 1996; Hjorth 2005, Orlikowski 2002). Micro-level studies of creative work help us understand the processes by which groups generate and evaluate new ideas, organize and manage work that proceeds iteratively rather than sequentially, develop outcomes that emerge from the processes of making, and reach closure through consensus rather than the fulfillment of preconceived goals (Austin and Devin 2003). Studies of improvisational theatre and jazz ensembles add detailed descriptions of work practices inherent in that form of group creativity, while gathering evidence of organizational creativity as situated in social interactions (Tsoukas and Chia 2002, p. 576; Barrett 1998; Weick 1993; Sawyer 2003, 2007).[13]

What we expect makes and breaks group collaborative creativity

Having taken a general look at theory on high performing work groups and how they are studied for collaboration and creativity, I will now focus in on how these studies inform our expectations of the factors that make group collaboration effective, and of what "makes" or "breaks" group collaborative creativity. First I will discuss what we expect to be critical, or

[13] These two paragraphs borrow heavily from O'Donnell and Devin 2012.

matter, to the effective performance of groups, particularly creative groups. Then I'll look at what we think causes collaboration and creativity to break down, or inhibits its becoming.

Factors that make collaborative creativity effective

Existing research literature and conventional wisdom lead us to expect that certain factors will increase the effectiveness of group collaborative creativity. I review several of these factors which feature prominently in studies of creative groups, as a way to consider what kinds of factors may also be relevant to the specific practice of ensembling. Factors include conditions of the work, including, for example, context support and group composition, as well as group member beliefs and behaviors, and work process design.

We expect ***conditions*** of the work to matter to the effective performance of group collaborative creativity. Hackman (1987, 2002, 2012) urges us to take a condition-focused approach in research and practice, to best organize, lead and participate in effective group work. As mentioned previously, *structurally interdependent task design* is one of the most powerful known drivers of collaborative behavior (Wageman et al 2012; Wageman 1995; Kozlowski and Ilgen 2006). Hackman (2002) differentiates between "co-acting groups" and "real work teams"; members of the former work "together", in proximity to one another, but their work does not depend on what their colleagues do, and they are largely managed and rewarded as individuals within the organization (42). The tasks of real work groups, on the other hand, cannot be completed without every member's involvement, and equal participation in that task matters to the group's success (Sawyer 2007). Wageman (1995) demonstrates that task and outcome interdependence increase cooperation, effort and performance.

Creative groups are capable of organizing themselves around a task to perform coordinated work (Kozlowski and Ilgen 2006); conditions that support their ability to achieve the *needed degree of proximity* required to facilitate coordinated (sometimes synchronous) interaction are critical, whether that concerns provision of proper physical conditions in the workspace or methods to address cultural and social barriers between members (Knoben and Oerlemans 2006). We expect *close physical proximity* to enhance the performance of creative groups, as it supports synchronous, face-to-face interaction. Kiesler and Cummings (2002) argue that close physical proximity provides a host of benefits to

highly interdependent groups: it enables regular communication and discussion in the context of uncertain work, enhances tacit knowledge sharing, improves group commitment, builds stronger social bonds and group identity, and "is the most powerful medium known for coordinating work within an interdependent group" (64). It has positive implications as well for enhancing team-learning behaviors, as it most readily enables reflective practices and the development of shared meaning (Edmondson et al 2001).

Additional conditions considered critical to the success of creative groups include *shared commitment* to the group task, and *a clear and meaningful goal* (Hackman 2002), alternatively described as a compelling vision or shared mission (Bennis and Biederman 1997). That goal, or objective, might be defined by an external leader, or it may arise as a shared purpose generated by group members themselves. Sawyer (2007) suggests that regardless of who defines the goal, there are benefits to leaving it less well-defined, when "problem-finding creativity" (and therefore more radical innovation) is called for rather than "problem-solving creativity" (45). Defining the goal too explicitly in advance can hinder creativity, whereas a goal that cultivates focus in a group while being open-ended enough to preserve group member autonomy creates the space for a more radically innovative outcome to emerge.

Group member *autonomy* as a condition of the work has been demonstrated to have a positive impact on both creativity and intrinsic motivation (Sawyer 2007:49; Quinn and Dutton 2005; Hackman 2002). Amabile (1998) argues that the key to creativity is giving people autonomy over their process for achieving a goal, as it heightens intrinsic motivation, gives them a stronger sense of ownership over their work, and allows people to bring their full expertise and skills to bear on a task. As already discussed, research offers conflicting recommendations regarding the best way in which leadership structures can facilitate autonomy. Arguments have emerged in support of self-managed teams as the best route to preserving autonomy (Muthusamy et al 2005, Gilboa and Tal-Shmotkin 2012), while others argue that e*xternal leadership* is needed to provide and protect member and group autonomy (Hackman 2002, Amabile 1998). While they express reservations about the efficacy of self-led groups, Wageman et al (2012) also acknowledge great potential, and see an opportunity for learning more about "the kinds of collective processes that enable self-governing teams to maintain an egalitarian leadership structure and make rapid and well-coordinated shifts in action when the environment demands responsiveness"

(2012:11). Aside from ensuring autonomy, external leaders are valuable to processes of collective creativity when they provide appropriate *context support*, such as critical resources and access to information (Edmondson 1999, Hackman 1987). Amabile (1998) suggests that the external leader's most critical job is to match the right people to the right task (Amabile 1998).

Group composition is critical to group performance. *Group size* has an impact on group creativity, though research is inconclusive regarding what the maximum number of members should be. Writing about "Hot Groups"—short-lived groups who are differentiated by their particularly fervent, "task-obsessed" behavior and their capability to be "extremely innovative"—Lipman-Blumen and Leavitt (1999) suggest that such high-performing groups should be "small enough to allow people to work with one another face to face", proposing a range in size from 3 to 30 members (155). Hackman (1987) argues that group membership should be "large enough to do the work…but no more than that" (327), otherwise groups risk becoming dysfunctional and losing efficiency. Regardless of size, in order to work interdependently, the group needs *clear boundaries* regarding who is a member and who is not (Hackman 1987: 336). One way external leadership can best support group creativity is to assign the "right" people to the task, and, as needed, get the "wrong" people out of the group (Lipman-Blumen and Leavitt 1999).

Though the literature conflicts about the benefits of *group tenure/stability* and *diversity of membership*, we need to be aware of the potential implications of both. Groups arguably benefit by building capabilities together over time (Hackman 2002), such as developing transactive memory systems to support coordination (Moreland and Myaskovsky 2000, Levine and Moreland 1999, Edmondson et al 2001). Sawyer (2007) advocates "familiarity" between members, suggesting that that "group flow is more likely to happen when players know the performance styles of their teammates and opponents" (51). Research has shown the benefits to groups who have built up a shared a body of tacit knowledge (Polanyi 1966, Nonaka and Takeuchi 1995, Leonard and Sensiper 1998, Sawyer 2007) and have shared mental models (Salas et al 2005). On the other hand, there is a risk group performance declines as stable teams settle into routines, become too able to predict the actions of their colleagues, reduce their communication (Katz 1982), or fall into "groupthink" (Sawyer 2007, Hackman 1992, Janis 1972). As mentioned in the introduction to this section, there is variability and conflict in literature as to what types of *diversity* (e.g.,

demographic or skill/expertise) in which contexts are performance enhancing (Kozlowski and Bell 2003). Hackman (1987) argues for a balance between homogeneous and heterogeneity in group composition, suggesting that if a group is too homogeneous, they may "lack the resources needed to perform the task because the members essentially replicate one another", whereas if they are excessively heterogeneous, members may be too "diverse in values or perspective" to work together effectively (327). Literature also conflicts on the related issue as to whether friction or conflict between members—often provoked by diversity—increases or decreases creativity (Sawyer 2007). Jehn (1995) demonstrates that when groups perform non-routine (i.e., creative) tasks, task-related conflicts can be beneficial. Leonard and Swap (1999) and Bennis and Biederman (1997) both describe the benefits of conflict for group creativity in their reports of great groups.

Group behaviors and beliefs can hinder or enable collective creativity. Edmondson argues that while prior studies of effective teams focus on the structural features of the work, interpersonal factors need more attention (1999). She demonstrates that a shared belief in *team psychological safety* supports the interpersonal risk taking that fosters learning behavior (Edmondson 1999). Salazar (2002) distinguishes creativity from learning and innovation, but I suggest similarities between high-learning teams and high-performing creative teams warrant consideration. Edmondson demonstrates that high-learning teams overcome obstacles and constraints and improve their situation, engaging in activities that enable them to adapt and improve, such as iterative, "ongoing process of reflection and action, characterized by asking questions, and discussing errors or unexpected outcomes of actions" (1999: 353). This *loop of feedback, reflection and action* is also demonstrated by performing arts groups, at an even faster rate of iteration: errors are corrected before they happen (Peat 2000), and reflection and action merge into one (Sawyer 2003). This immediate feedback increases team performance; Hackman (2002) argues for the study of live performing teams on this basis. We learn from the study of live performing teams that *emotional and empathetic engagement, intense interpersonal relationships* and *intersubjectivity* are behaviors critical to group creative activity (Sawyer 2003, Barrett 1998, Hatch 1999).

Finally, ***work processes*** can be designed and enacted in ways that enhance collaborative creativity. Kozlowski and Ilgen (2006) report that the alignment of team processes with the team task is critical to that team's effectiveness. Efforts need to be

directed productively towards achieving the team's objective, or realizing their shared purpose. *Iterative work processes* or phases are more suited to creative processes from which novel outcomes emerge, than are plan-driven, sequential work processes (Austin and Devin 2003, 2010). Creative teams frequently conceive of their work process as overlapping and cyclical phases through which they, for instance, get familiar with the constraints and context of the "problem"—often re-defining the problem creatively—and seek inspiration, ideate, and implement (Brown 2008). Collaborative creativity depends on a work process arranged to support the emergence and integration of unanticipated ideas and outcomes (Austin et al 2011; Sawyer 2003). Processes need to allow for the right *balance of constraint and freedom* (Sawyer 2003, 2007). Often, "rules" for creativity are set forth; a set of tools and constraints to facilitate creative group processes are offered to leaders wishing to enhance their team's creative performance (Catmull 2008, Brown 2008, Sawyer 2007).

To summarize, the existing research literature leads us to expect that group collaborating on creative activities will be more effective if they engage in highly interdependent work in co-located conditions, experience shared commitment to the group and to a clear and meaningful goal, are given the autonomy to determine how best to bring their expertise to bear on a task, while being provided sufficient resources and necessary contextual support. Group composition needs to be carefully crafted, and behaviors, beliefs and processes should support iterative, exploratory, empathetic, and emergent work to happen in an environment in which it is safe to take risks and make errors.

Factors that cause collaborative creativity to break down

Broadly speaking, research suggests that collaboration and creativity break down when a group lacks the conditions and beliefs, or fails to perform the behaviors and processes critical to its effectiveness, as discussed. We can generate many insights into what causes collaborative creativity to break down by simply reversing those things that we believe enables group performance. However, I will briefly summarize some specific arguments that research presents regarding what breaks or inhibits collaboration and creativity, to underscore some of the key factors that have been learned and studied so far. Though I do not claim that this list is comprehensive, I offer these as examples of the kinds of conditions

and features of collaborative creativity that have so far occupied our attention.

When task interdependence is low, and the completion of an individual group member's work does not hinge on the work of others, collaboration breaks down (Wageman 1995, Hackman 2002).

When individuals rather than groups are rewarded for performance, reinforcing an individual's tendency to focus efforts on completing their own part of the task apart from others, rather than sharing responsibility, collaboration breaks down (Wageman 1995, Lipman-Blumen and Leavitt 1999).

When extrinsic reward structures infringe on intrinsic motivation, creativity breaks down (Amabile 1996).

When managers/leaders or other group members judge or criticize ideas, and/or punish groups or group members for ideas that are not used, creativity breaks down (Amabile 1996)

When groups lack the psychological safety necessary for interpersonal risk taking, team learning behavior breaks down (Edmondson 1999).

When group members lack close physical proximity enabling face-to-face communication; or, alternatively, they lack another form of "shared space" in which collective knowledge creation can occur (Nonaka and Konno 1998), collaboration and creativity break down. The former is particularly critical to members of groups whose work depends upon achieving a high degree of interactional synchrony, such as performing artists and surgical teams (Sawyer 2003, Edmondson et al 2001).

When group members lack immediate feedback during their work process, collaboration and creativity break down (Edmondson 1999, Hackman 2002), as do experiences of group flow (Sawyer 2007).

When group members become *too* familiar with one another (Sawyer 2007: 52) or are too similar in their perspectives and backgrounds (Amabile 1998), collaborative creativity breaks down.

When the work gets too easy, and/or becomes routine (Sawyer 2007), creativity and collaborative creativity break down.

When groups aren't given the autonomy and freedom to bring their full expertise to bear on a problem, collaborative creativity breaks down (Amabile 1998, Hackman 2002).

When groups lack clear external leadership (Hackman 1987, 2002; Wageman et al 2012), or the wrong kind of external leader support (e.g. too invasive or controlling; Morgeson 2005, Amabile 1998), collaborative creativity breaks down.

When members lack a clear direction and shared purpose (Hackman 1987, 2002); or, alternatively, if the direction is too well defined in advance (Sawyer 2007), collaborative creativity breaks down.

These last two points are often considered interdependent: Wageman et al (2012) express reservations about the ability of self-governing teams to perform as well as teams governed by individual leaders. They base their argument on a lack of clear external leadership support for providing a clear direction for the group: "It is very difficult for a self-governing team to articulate a clear purpose collaboratively; the result is often an unsatisfactory compromise of individual preferences" (Hackman 2002: 224–225; Wageman and Hackman, 2010)" (10). The result: collaborative creativity breaks down.

The extensive literature on high-performing, collaborative and creative groups has so far provided rich understanding related to the interaction between conditions of the work, member beliefs and behaviors, and potential for effective performance, and possibly group creativity to emerge. The list is extensive, yet we still have trouble knowing which of these "critical features" are more important, or more relevant to particular conditions and work settings. It is difficult to differentiate between the kinds of collaborative activities happening, from which we build this knowledge, and what earns these processes the honorific of "creativity", because we're looking at a lot of different examples of group work. Wageman's argument for the benefits of work task interdependence is based on a study of teams of service technicians at Xerox (1995). Whereas Catmull (2008) describes practices supporting creativity in an animation studio—processes fraught with competition—and

Brown (2008) reports on his work with IDEO designing products, services and experiences for clients. Edmondson (1999) studies manufacturing teams to investigate team learning and behaviors, while Sawyer lives amongst improvisational performing artists to generate his understanding of group creativity (2003, 2007).

In the next section, unfortunately, this difficulty will only be exacerbated by an investigation into how groups working in distributed conditions are studied. Here a new set of conditions cause a new set of concerns take priority. Since little more help is offered in this field towards increased precision regarding the forms of collaborative activity, our problem of sorting out what constitutes collaboration and creativity, so that we can better understand what supports and prevents it, increases. However, some promising new activities emerging in practice and research urge us on.

CREATIVE COLLABORATION IN DISTRIBUTED CONDITIONS

Given new opportunities for working together across distances with digital support, the kinds of teams organizing to perform collaborative creativity are rapidly increasing both in the rate of emergence (forming and re-forming) and in type (Wageman et al 2012). Increasingly, people attempt collaborative innovation across geographic and organizational boundaries (PricewaterhouseCoopers, 2008). Doing so affords opportunities for accessing a wider talent pool, sharing knowledge and scarce resources, and sharing risk with multiple partners. Advances in technology from air travel and video conferencing, to social networking tools, virtual worlds and open source practices are inspiring generations of users to develop new kinds of adaptive collaborative networks and capabilities (McAfee, 2006). People are finding new ways to come together in distributed or virtual spaces and make things: from arts and learning events (e.g., the "Point25" distributed audience project; see Handberg et al 2005), to political uprisings (University of Washington, 2011) and social movements (flash mobs, cite), to architectural networks of innovation (Boland et al 2007) and born global ventures (Knight and Cavusgil, 1996).

Work in distributed groups is fraught with difficulties needing address; groups often struggle to perform effective communication and coordination, let alone creativity and innovation, in these conditions. As a result, empirical research rarely offers examples of creativity and innovation being performed in distributed conditions. The study of work in

virtual and distributed teams takes as its most pressing and relevant problems proximity, communication, coordination, knowledge transfer and cognition (Kratzer et al 2006, Orlikowski 2002), and how these relate to performance—not, necessarily, creativity. Researchers look at how different forms of proximity and perceived proximity impact collaborative work (Knoben and Oerlemans 2006, Wilson et al 2008). Cummings et al (2009) has used quantitative network analysis of offshore outsourcing projects to examine difficulties of coordination among team members separated temporally and spatially. Studies investigate the use and interplay of diverse modes of communication, as well as frequency and rhythm of face-to-face interaction along with remote forms of communication as it helps improve team performance (Maznevski and Chudoba 2000). *Coordination* of distributed work takes focal concern. Godart et al (2001) argue the effectiveness of implicit team orchestration of coordination. Work across organizational barriers, where language, culture and traditions are not shared inhibits knowledge sharing necessary for learning and innovation (Knoben and Oerlemans 2006) and increases the risk of conflict in work teams (Mortensen & Hinds 2001, Hinds and Bailey 2003).

Potential arises for studying creative collaboration in distributed conditions when researchers investigate how effective knowledge transfer across boundaries increases learning and the potential for innovation. These studies focus on the use of boundary objects that mediate between different kinds of knowledge to support collaborative knowledge creation (Carlile 2002), and the potential role of information systems in supporting distributed cognition (Boland et al 1994). Despite rich investigation, studies of distributed work groups often admittedly fall short of addressing innovation and creativity, just as practice often falls short in achieving it (Orlikowski 2002). While temporal entrainment and action synchronization is central to investigations of coordinated activity (Kozlowski and Ilgen 2006), collaborative activity rarely achieves the level of interactional synchrony demonstrated by some co-located groups—the kind which enables groups to generate emergent novelty.

Factors that make collaborative activity in distributed conditions effective

In the following list, I offer a few representative examples of conditions, structures, and behaviors that appear to "make" collaboration—potentially creativity as well, or at least effective knowledge sharing and learning—possible in distributed conditions.

Effective mediating technologies that allow for open flows of information exchange and knowledge transfer (Boland et al 2007, Carlile 2002) enable collaboration to emerge out of work processes that were once co-actional , whether co-located or distributed (Boland et al 2007; Wageman et al 2012).

Tasks designed to prompt interpersonal interaction supports collaborative behavior (Kozlowski and Ilgen 2006). Again, structural interdependence is "among the most powerful known drivers of collaborative behavior" (Wageman 2012: 6).

The right degree of frequency and rhythm of face-to-face interaction along with remote forms of communication support collaborative activity (Maznevski and Chudoba 2000). Work groups that operate at higher levels of interdependence, such as reciprocal interdependence, require more frequent interaction (Thompson 1967; Maznevski and Chudoba 2000). Technology needs to support this degree of interaction (Maznevski and Chudoba 2000, citing Turoff et al 1993: 485).

Experiences of "close" proximity or perceived proximity, in diverse forms, such as close cultural, social, organizational, technological, and geographical proximity, support collaborative activity (Knoben and Oerlemans 2006, Wilson et al 2008).

Factors that cause collaborative activity in distributed conditions to break down

Some conditions, structures and behaviors that have been demonstrated to "break" collaboration in distributed conditions include the following:

Experiences of "far" proximity (real or perceived), in diverse forms as previously listed, inhibit collaborative activity and behavior (Knoben and Oerlemans 2006, Wilson et al 2008).

High temporal boundaries (i.e., different time zones that cause non-overlapping work hours) between distributed group members delay/prevent members from achieving a degree of coordination needed to support collaboration; temporal boundaries are more difficult to cross than spatial boundaries (Cummings et al 2008).

Relying on technology to mediate communication and collaborative work results in increased conflict between group members, disrupting collaborative behaviors and negatively impacting team performance (Hinds and Bailey 2003).

Configurational imbalance, the degree to which the location of team members is imbalanced across sites, also increases the potential for conflict between members, as well as increasing the potential for majority influence to crowd out members, disrupting collaborative processes (O'Leary et al 2007).

The participation of individuals in multiple (distributed) groups causes a decline in personal commitment to the team or project, as well as a decline in behavioral interdependence, or "the degree to which group members actually work *together*" (Wageman et al 2012:7).

As demonstrated by this quick summary of a broad literature addressing group work in distributed and digitized conditions[14], examples of collaboration, creativity and how creative processes interact with these conditions are few and far between. We get close when we talk about technologies and processes that enable open and effective knowledge exchange, or encourage interpersonal interaction. But we haven't yet gotten far from studying the methods of coordination and ways to address barriers to communication. At the same time, given rapidly emerging technologies and the diffusion of new practices, new kinds of collaboration (in various forms yet to be understood) are supposedly happening in conditions of digitization and globalization of work. Distributed teams increasingly defy the traditional bounded team model; instead a multiplicity of team-like activities is happening, which require more precise descriptions and theories for understanding (Wageman et al 2012). We know how to define and study traditional teams. Now we need to find new ways to understand how different kinds of teams that are globally dispersed, virtual, fluid or "porous" in membership perform collaboration and creativity. With new forms of practice emerging, and with increasingly varied types of groups forming, we are in urgent need of rich descriptions of new phenomena from which to build new theory (Wageman et al 2012).

[14] This broad approach is notably problematic, in that I lump together arguments that have been developed on the basis of empirical work in different kinds of technologically-mediated and distributed conditions. I do so in the interest of briefly illustrating some of the kinds of factors being considered in this domain.

Having taken a look at how collaboration and creativity in groups is being studied and understood so far, I now zoom in on a highly specialized form of group collaboration being newly explored in studies of innovation, entrepreneurship and creativity. I will describe what we know so far about the phenomenon of ensemble, and what conditions, beliefs, methods and behaviors call it into being.

ENSEMBLING AS A SPECIAL KIND OF CREATIVE COLLABORATION

In this discussion, I look at *ensembling* as a special kind of creative collaboration with particular qualities and methods. I discuss what groups provide examples of ensembling, why we study them, and what it is we study. I address the different ways the term ensemble is used in theory in both noun and verb form: to describe a kind of group, a quality the work of such groups exhibits, and a process of calling that quality into being. Then in order to address my research question—"How do work groups enemble?"—I synthesize recently emerging theoretical and empirical descriptions of the methods by which special groups create ensemble, which I believe suggest a framework of ensembling. I use this framework to summarize our current state of knowledge, then I raise some issues that begin to challenge or problematize the framework, opening it up to critique, new insight, and elaboration. In Chapter 5, I engage new data in dialogue with theory to seek out variation and elaboration of the methods and conditions that enable ensembling, and investigate those things that inhibit ensembling, then suggest a revised framework that represents some of the ways in which our expert informants think about their work. In Chapter 9, following analysis of the primary case, I will revisit this framework to see how my investigation of ensembling in stretched conditions has contributed new understanding.

How we study ensemble

We expect studies of "ensemble" to describe groups in the performing arts: music, both vocal and instrumental, whether classical or jazz, rock or ritual, spanning diverse cultural traditions; theatre whether scripted or improvised; or dance as performed in various

cultures for various purposes. Musicians and musicologists have described the work of music ensembles in great detail, and for audiences with different degrees of expertise and interest (i.e., Blum 1986, Berliner 1994, Brinner 1995, Steinhardt 1998, Moritz 2005, Faulkner and Becker 2009). Researchers studying creativity, organization and innovation have frequently turned to performing arts ensembles to gain new insights into collaborative processes that are highly interactional, improvisational and emergent (i.e., Sawyer 2003, 2006; Hatch 1999; Barrett 1998; Weeks 1996; Hackman 1990). Artists in general are naturally driven to make things that are novel or different in a special, often unanticipated, way, and they collaborate with their materials or one another in real time to do so (Austin and Devin 2003, 2012), which make them interesting subjects of study for those interested in producing novelty. The intense interpersonal dynamics of string quartet musicians have been studied to better understand, for example, how verbal and non-verbal modes of communication foster group creativity (Seddon and Biasutti 2009), how self-managed teams operate effectively (Gilboa and Tal-Shmotkin 2010), and how to live productively with paradoxes that are inherent in many forms of group work (Murnighan and Conlon 1991). These studies suggest (and are designed to suggest) potential for transferability of learning to other kinds of high-performing work groups.

As researchers trace similarities between the work of arts ensembles and special groups operating in other contexts, such as teams in design or animation studios, or emergency response units and teams in the service industry (Hackman 2002), the scope of what might be categorized as "ensemble" expands. Austin and Devin outline a set of process characteristics and management principles shared by both theatre ensembles and agile software development teams, that describe similarities in how these groups routinely innovate (2003). Austin and Hjorth build their argument for ensemble-style collaboration that leads to special outcomes on the work of a strategy and design firm (2012). Austin and Devin (2012) and O'Donnell and Devin (2012) report findings from a multi-case study of the artful making practices of teams who work in similar ways whether in the field of arts or in other industries, such as airplane manufacturing and high-end electronic product development.

Interestingly, those studying the work of performing arts ensembles rarely investigate the phenomenon of ensemble itself (Blum 1986 is one exception). Arts ensembles are more often studied to understand specific features believed to be relevant

either to arts practice or to many forms of group creativity. Even when whole systems of methods practiced by performing artists are proposed, rarely are they presented as constituting a process of ensembling. For example, in his thorough study of the features of collective creativity in improvisational theatre and jazz, Sawyer uses "ensemble" primarily to name the kind of work group he studies, rather than special qualities of their process (2003, 2006); he refers to the processes he studies broadly as "group creativity." Ensembling has so far been theorized more often on the basis of the study of work groups in other fields, or comparisons between arts ensembles and these other groups, such as those studies mentioned above.

Ensembling in theory

Austin and Devin (2003) describe Ensemble as both the name of a special kind of collaborative group and as a *quality* of the work that emerges when groups practice certain methods. Their evidence suggests groups create ensemble with intentionality. In his case study of a regional theatre company in the United States that has built a tradition of working with a resident ensemble of artists since their founding in 1974,[15] Austin found that the actors "try to create 'ensemble' out of their reactions to each other's work" (2000:9), and that ensemble "forms gradually as personal relationships strengthen" (Ibid: 9). In an exhibit to the case study, the theater's dramaturg Lee Devin reports on the phenomenon of ensemble as emergent, called forth by particular methods engaged over time: "The Ensemble appears, not in response to desire or fiat, but as a hard-won result of certain ways the actors work, and of their creative reactions to each other's work" (Ibid: 19). These authors focus on the method of "reconceiving" as the primary method that generates ensemble, and define it as "an iterative process in which performers generate a new sequence of rehearsal events from holistically combining the last rehearsed sequence with new information, ideas, and materials" (Ibid: 10). In this practice, even seemingly incompatible ideas that inevitably arise between actors are "good", in that they are part of

[15] I start with this example because it is where the Artful Making (Austin and Devin 2003) study begins: from analysis of this case arose an interest in using examples of practices in the arts to learn about innovation processes in more business-like contexts. Artful Making introduces the concept of ensemble to the analysis of group work in creative businesses. This example is also the example with which I am most familiar, having worked as a member of the resident ensemble of artists from 1998-2005.

"the energy that propels the process" (Ibid: 20). Groups know they've succeeded in their efforts when "the ensemble itself becomes a kind of art work, larger and more expressive than the sum of its parts." (Ibid: 9). In sum, a group creates ensemble by working together in ways that repeatedly combine every member's contribution into a larger whole, an endeavor that is supported by strengthening relationships over time and the energy of bringing divergent ideas into combination.

Introducing the Theory of Artful Making, Austin and Devin (2003) develop the concepts of ensemble and reconceiving further. They describe the form of collaboration from which ensemble emerges as "a conversation…from which all parties come away with new ideas." Reconceiving is the primary technique members practice as they converse; by using each other's contributions as "material" which they combine with their own ideas, they are able to "make new, unpredictable ideas" (2003: 169). As they do this "individual members relinquish sovereignty over their work," allowing an unpredicted outcome to emerge from the making process, "and thus create something none could have made alone: a whole greater than the sum of its parts" (Ibid: 16). The authors again build their description of ensemble on examples from the work of theatre artists, but regularly describe similarities between these descriptions and those in business, drawing examples from the work of Lean manufacturing teams, agile software developers, and companies increasingly interested in creating playful interactions with their customers over time (Ibid: 170).

As a quality of the work, Ensemble emerges from and cannot be extracted from the work in which the group engages (Ibid: 129). Therefore, it exists only so long as the group engages in the making process that exhibits this quality. Austin and Devin describe artful making as consisting of four qualities, of which ensemble is one. The process of artful making includes work practices that call forth all four of these qualities, and which operate interdependently. The other qualities are *release*, that special kind of *collaboration* that involves reconceiving, and *play* (Ibid: 129). I elaborate on these qualities next, in search of understanding the methods that call them into being.

The four qualities of Artful Making

Intentionally trading a "business lens" for the emic words of artists, Austin and Devin (2003) describe four interdependent qualities of artful making—release, collaboration, ensemble, and play—and suggest relationships between those qualities. While they don't present it as such, their description of these relationships propose a framework, which I will formulate here as a way to relate their idea of ensemble to other emerging ideas, in order to summarize current understanding of the conditions, methods and behaviors that support its creation. First, I'll review the four qualities in brief as Austin and Devin (2003) present them, then discuss the relationships between qualities, as they describe them, which suggest to me a framework. I'll propose that framework, then elaborate upon it by engaging related theory. For instance, the work of Austin and Hjorth (2012) enables me to elaborate a section of the framework on collaboration. As I elaborate, I will consider how related concepts such as psychological safety (Edmondson 1999), flow (Csikszentmihalyi, 1990), interactional synchrony (Sawyer 2003, Weeks 1996, Schütz 1964, Condon and Ogston 1971), and groove (Berliner 1994) relate to this framework, in ways that enhance our understanding of ensembling through similarity or difference. Later in this thesis, I will use new empirical evidence to investigate the relationships between conditions and methods of ensembling, as it naturally occurs in groups and suggest other relevant features of, and extension to, the framework (Edmondson 1999).

Release

Austin and Devin (2003) start with the quality of release, which they designate the "fundamental" quality of artful making (Ibid: 143) and define as a form of control that "aims behavior rather than restrains it" (Ibid: 168). Through release, makers "move past tensions and inhibitions to gain access to original ideas and outrageous thoughts" (Ibid: 169). For makers to achieve and maintain a quality of release, they engage in careful (often extensive) preparation and practice focus. Preparation involves a range of activities that increase contextual knowledge, build technique, develop skill and stamina, and free the body of physical tension to allow reflexive action; in short, preparation involves learning and doing whatever you need to learn and do in order to be ready to do whatever is needed in the course of performing the task (O'Donnell and Devin 2012). Focus directs the mind away from the mental tension of inhibition. As artful makers develop the skill of focus, they

become "comfortably aware" of the activities around them, while being "productively focused" on their own activity (Austin and Devin 2003: 90). Rather than restrain themselves by tension, inhibiting the access they might have to new insights and ideas—critical material for collaboration—they direct their attention in useful ways.

Collaboration

When group members are capable, through preparation and focus, and willing, through the support of a secure workspace that ensures they feel safe to explore new ideas without penalty (Ibid: 118), to work from release, they make collaboration possible (Ibid: 128). While "Release operates to create new and original action" (Ibid: 171), Collaboration ensures that the new and original action of each member emerges in relationship to the prior actions of colleagues, and becomes part of the conversation from which everyone generates new ideas. Collaboration is based on practicing the technique of reconceiving, by which actions combine as people work together (Ibid: 171).

Ensemble

"When Collaboration flourishes with skilled workers in a secured workspace, it yields a new creation, Ensemble" (Ibid: 171). Through their successful enactment of the special kind of collaboration that involves reconceiving, a team creates Ensemble. The transition happens when makers "begin to see their particular effort as part of a larger and more expressive whole thing" (Ibid: 128). And that thing is greater—more special, compelling, complex—than the sum of individual contributions. Contributions can no longer be considered apart from the whole. Excitement increases, engagement in the project deepens, relationships between members grow stronger. Members importantly "relinquish sovereignty" over their own contributions, and do whatever work is needed to achieve the greater whole. Austin and Devin distinguish Ensemble as the "penultimate" quality of artful making (Ibid: 128).

Play

The activity of performing ensemble—performing work that prioritizes a greater whole—calls play into being. Play is "the form on which action converges, but which never locks in on perfect repetition" (Ibid: 171). Group action is collaboratively, spontaneously improvised in the moment. Play not only indicates that the work has the qualities of release, collaboration and ensemble, but it also indicates that something new is happening. That

something new, furthermore, is happening right now, and will happen differently (be unique) the next time the group plays. Austin and Devin suggest that when groups play, the activity of play in itself becomes both the form of making (part of the process) and the outcome manifest in the interaction between maker and customer (Ibid: 170-171). This is how ensembles routinely create novel (innovative) outcomes.

Austin and Devin assert that the four qualities of artful making are interdependent, and that each "manifests throughout the work, in every moment" (2003:168). Considering the work in its ideal enactment, these qualities are always present, and they cease to be present when the work ceases. However, the authors also suggest that, in practice, the qualities are not only interdependent, but interdependent in such a way that each quality in succession enables the next to come into being, and that each quality is dependent on the prior: Makers need to "achieve the quality of Release in all aspects of their working together" in order to experience collaboration (Ibid: 169). When they collaborate, "they contribute to the making of something else as well…: an ensemble." (Ibid: 169). "Out of Ensemble emerges Play" (Ibid: 171). And, conversely: "Play emerges from Ensemble, which results from Collaboration, which needs Release" (Ibid: 171). "Ensemble doesn't appear magically as a result of sentimental incantation. It's the hard-won result of Collaboration, born of the practice that enables Release." (Ibid: 170). These relationships, I suggest, translate to the following framework (see **Figure 2.1**), in which each progressive quality emerges in the context of the former.

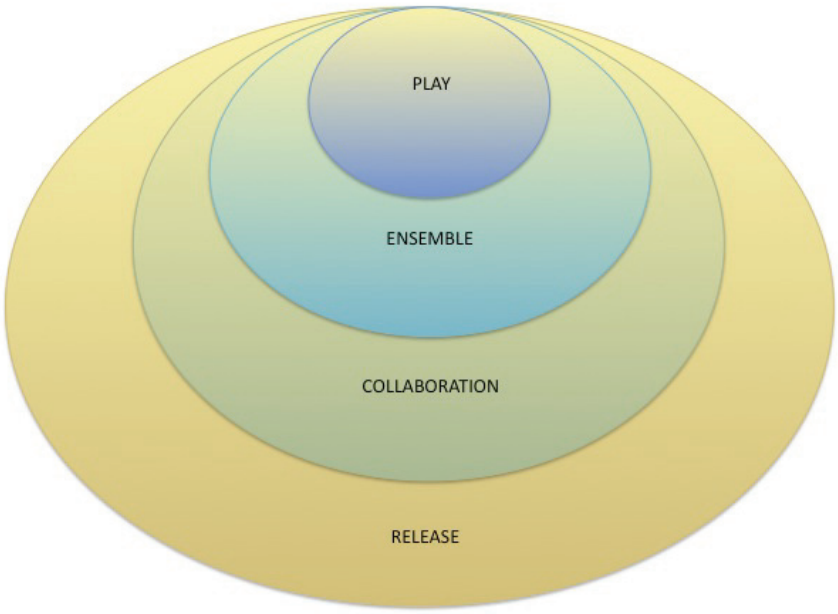

Figure 2.1. Framework of Ensembling Qualities

Elaborating the framework with related theory

Each quality in this framework is called into being, not by the prior quality, but by work methods, the effective performance of which are enabled by the previous quality. Makers, for instance, prepare and practice focus in order to achieve a quality of release in their work. Release, then, allows special groups to practice the method of reconceiving in such a way as to call the quality of collaboration into being. These qualities contain within them other qualities: Release, Austin and Devin (2003) tell us, includes in its performance the qualities of being comfortably aware and productively focused. Conditions, Austin and Devin suggest, matter too: A secure workspace is a necessary condition for release, and everything that follows. But what other conditions, besides the achievement of the former quality, enable groups to move from release to collaboration, from collaboration to ensemble, and from ensemble to play? What methods, when performed, call the next phase into being? Austin and Devin tell us that once achieved, teams must "continue to work long, hard, and systematically to maintain [Ensemble]" (2003:129). Are there other, special methods and enabling conditions that help us to maintain the qualities? I look next to

related theory in order to address these questions and elaborate the framework of qualities.

Release

Austin and Devin (2003) address the methods for performing release, and an important condition. The first method is *preparation*, carried out in diverse ways depending on the makers' craft and the nature of the task. The second method is *focus*, the exercise of a skill that can be developed by engaging in exercises that direct attention in productive ways (Ibid: 88-90). The performance of release involves being "comfortably aware" and "productively focused." Release and its methods are to be developed at the individual level, though release ultimately needs to be performed in a group context, and the methods can (and most likely should) be practiced with others. Release is particularly helpful when people seek to perform *work on the edge* of their capabilities, where they experience discomfort, but where learning, discovery and creativity happen (Ibid: 123-124). To learn to sustain work on the edge—to meet discomfort with release rather than tension—requires practice with doing so. Through practice, makers come to trust themselves in these new situations, and by extension, through practice in groups, they come to trust their colleagues (Ibid: 125), and can perform release in social contexts.

We can compare Austin & Devin's description of the experience of release as "comfortably aware and productively focused" to the experience of flow. Describing his positive psychology concept of flow, Csikszentmihalyi (1990) tells us that people experience flow when they engage in activities that present them with a challenge they perceive as being optimally suited to their perceived ability to meet that challenge, given their skills. Engagement in such activity requires full focus of attention, and help participants "achieve an ordered state of mind that is highly enjoyable" (Ibid: 72). Enjoyment provides motivation for the participant to continue to engage in the activity. People experience a degree of comfort or security, believing that their skills are well matched to the task (an important condition of the work).

However, the flow experience is a moving target, and here is where discomfort, and work on the edge, comes in. As people perform work in a state of flow, their skills develop beyond the current challenge and they become aware of new challenges they wish to address. Discomfort manifests as either boredom, if the task becomes too simple, or anxiety,

if the challenge seems to great for the individual to believe he or she can perform well (Ibid: 74-75). The latter form of discomfort, combined with the motivation to again enjoy the peak experience of flow, can inspire a performer to seek the next challenge. Doing so, he or she must work for a while on the edge of his or her known capabilities until skills develop to meet the challenge. While release includes the possibility that a performer experiences flow, Austin and Devin (2003) emphasize the way in which release helps makers to sustain work on the edge: to get comfortable while being uncomfortable, and to release tension while meeting resistance. They suggest that work in the zone of discomfort more likely yields creative and innovative outcomes of the kind that artful makers are after. Flow is the reward that motivates makers to learn, develop, and pursue the next edge, but it is work *on that edge* that seems to yield novelty in this description.[16] Regardless of when novelty emerges, I suggest that the flow experience, when realized, serves to motivate work on the edge, while release serves to help makers manage discomfort productively so that this work can continue. Over time, makers increase the degree of difficulty in their work at which they can achieve release.

Austin and Devin (2003) engage Edmondson's construct of psychological safety in their argument that a secure workspace—a workspace that group members believe is safe for interpersonal risk taking (Edmondson 1999: 350)—is a critical enabling condition for release and work on the edge. Through mutual respect and support, teams create environments that lower the risk of negative social consequences associated with trying out new ideas or working outside your comfort zone. Release depends importantly on trust, as release allows non-conscious (and potentially valuable) ideas to emerge and be explored by individuals (Sawyer 2003: Chapter 2), who will only be willing to do that in a social context if they can trust their colleagues with material they haven't yet had the opportunity to assess. In an atmosphere of trust, group members are able to perform release, and are more willing to engage different ideas, stretch their skills, and experiment with new methods. In turn, working on the edge with others over time increases group member's trust in one another (Austin and Devin 2003: 125), making the workspace all the more secure. Austin

[16] As Sawyer (2003) argues, "flow" is a different phenomenon when studied at the group level. Participants describe experiences in which they perform more than they knew themselves to be capable of while experiencing "group flow"; they become "more than" themselves as the commanding form takes over. In this case, choosing to work in a group of expert colleagues is one way people seek to work on the edge of their capabilities.

and Devin give practical examples of how theatre ensembles build mutual trust (Ibid: 125). To synthesize this discussion of theory related to Release, I make the following additions to the framework (see **Figure 2.2**). I created a field of conditions and group beliefs, within which the qualities can emerge. The methods are those activities by which collaborative groups achieve the four qualities: I start with those methods by which makers achieve, and increase their capacity to achieve, release.

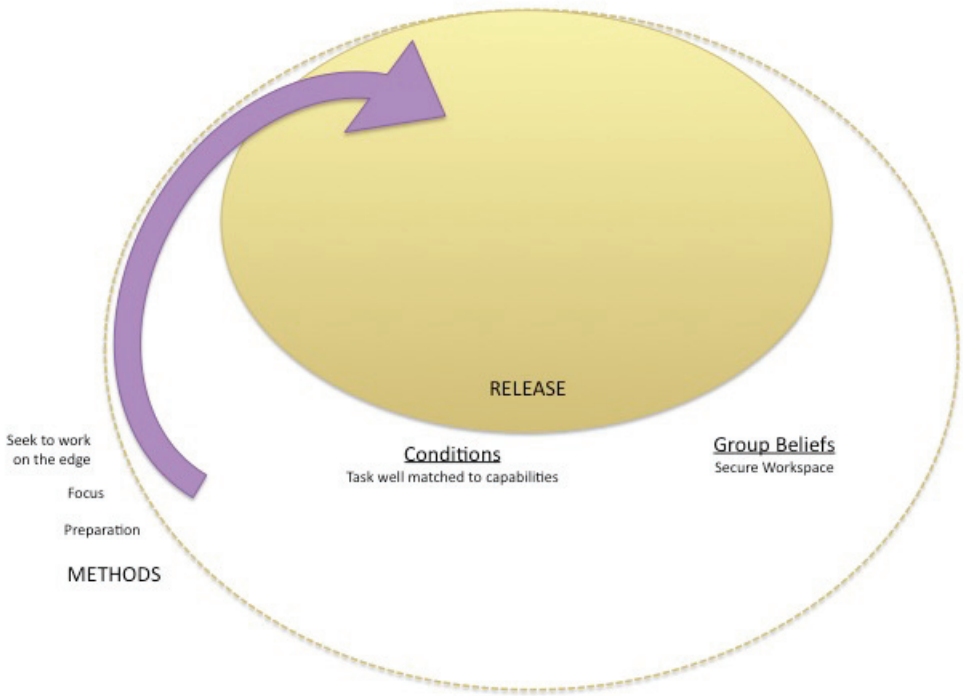

Figure 2.2: Elaborating the Framework, based on the quality of Release

Collaboration-as-conversation

In artful making, collaboration is based on the practice of *reconceiving*: the process by which people combine their actions and ideas to make new actions and ideas. Austin and Hjorth (2012) describe methods to create and sustain the kind of collaboration that involves reconceiving, in their analysis of the conversation that occurs between the seemingly conflicting logics of the economic and the aesthetic in a design firm. They use the term

conversation to describe "a form of sociality" between people that paves the way for the possibility of ensemble and play. They show that the practice of reconceiving integrates seemingly opposite or contradictory logics, objectives or ideas that inevitably arise, and yields outcomes that are "both exhilarating for participants… and effective in the much broader terms of the firm's overall strategy—greater than the sum of [the] parts." (Ibid: 20).

Austin and Hjorth (2012) point to the danger inherent in dialogue: that one logic might dominate, rather than become integrated with another and create a new outcome that is both more "exhilarating" and "effective." So conversations are considered fragile and in need of careful tending. Austin and Hjorth provide an example of a process in which directors at e-Types, a strategy and design firm, failed to integrate opposing ideas. The result was two separate outcomes, neither of which served the firm's objectives. They attribute this failure to a breakdown in conversation; one logic dominated. In order to manage this risk and ensure reconceiving, Austin and Hjorth propose three key methods that sustain collaboration-as-conversation: dialogical relationality, in which members open to and embrace Others; creating space for play; and creating/cultivating organizational instability.

In collaboration-as-conversation, members of special groups engage in dialogical relationality (Austin and Hjorth 2012:28), so that no one logic, idea or person dominates. They open to the ideas of the "Other"—an opening that expresses the quality of release—and invite the Other to become part of themselves; the Other's work to become part of their own work. The practice of "deep listening" is a demonstration of this: this highly empathetic form of listening invites the Other's "materials [to] enter your mind…as material for new thoughts and actions" (O'Donnell and Devin 2012; see also Sawyer 2007). This opening invites the activity of reconceiving. Seddon and Biasutti suggest such "empathetic attunement" between musicians, achieved when musicians "decenter and see things from other musicians' musical points of view" also supports spontaneous variation in the work (2009: 119-120). New ideas emerge in between people, and can no longer be attributed to any individuals, but only to the collective body. Creating space for play extends the scope of this idea: in the example of e-Types, the organization opens itself to opportunities to do things for other reasons than the usual, typically reasons other than economic, such as for "fun" or to develop playful new capabilities to serve client needs they cannot yet predict.

Like work on the edge, instability is uncomfortable. It requires the organization to cultivate and express "multi-voicedness," or difference, and to accept and invite conflict. Devin (in Austin 2000) gives an example of conflicting ideas that arose between actors in a rehearsal, and suggests that seemingly incompatible ideas inevitably arise in collaborative work and are "good," in that they are part of "the energy that propels the process" (Austin, 2000:20). Austin and Hjorth take this idea further, suggesting that incompatible or even contradictory ideas are not only "good" but are necessary to the generation, through reconceiving, of novel and unanticipated ideas that could not otherwise have emerged. Opposing logics, objectives, and ideas must in fact be generated, cultivated, and included in order to fuel the practice of reconceiving, and ensure new outcomes emerge out of the collective body. Rather than try to resolve conflict or avoid disturbance, Austin and Hjorth recommend that members of the organization cultivate instability through acceptance, and even, when needed, intentional disturbance of stable conditions. Instability, while uncomfortable at times, is necessary to the performance of collaboration-as-conversation.[17]

Austin and Hjorth briefly suggest that collaboration-as-conversation occurs in the context of organizationally coordinated activity, describing that as a condition of the work. Coordination between participants is fundamental to the act of conversing. But Austin and Hjorth do not address how that coordination is achieved; likely it would be unique to the organization in which it is performed. Coordination between people is not a fixed and stable condition, but an ongoing accomplishment requiring regular effort and attention (Barnard 1968, Weick 1979, Quinn and Dutton 2005, Orlikowski 2002, Weeks 1996). Conversation is a social accomplishment that is temporal and emergent (Dewey 1934, Sawyer 2005). So the way in which special groups coordinate their work to perform collaboration-as-conversation matters also as a method.

Live performing teams usually depend on coordinating their work with a high degree of synchrony. Musicians are one extreme example of this, in that they must achieve precise synchrony to perform their work together. According to Weeks, the "distinctive

[17] In Austin and Hjorth's example, Directors at e-Types cause intentional disturbance by, for instance, hiring people who will challenge the leadership team's usual aesthetic, or taking on a new project that requires them to develop new skills and achieve outcomes they don't yet know if they are capable of achieving (2012: 30-31).

temporality of music" makes the achievement of synchrony a "collaborative, practical accomplishment" (1996: 201). In order to better understand how the practical problem of coordination is addressed collaboratively in the course of normal work, Weeks (1996) studied the processes by which chamber musicians maintain synchrony by analyzing the split-second alterations they make to recover synchrony when mistakes area made (Ibid: 201). His analysis indicates that musicians determine their place in time in relation to one another, rather than to a fixed score, and concern themselves more with being "correctly" in time with one another than with the score (Ibid: 219). He uses Schutz (1964) to elaborate on how this is achieved: Schutz suggests that musicians engage in "mutual tuning-in relationships" by "living together simultaneously in specific dimensions of time" (Ibid: 162), translating their experience of outer, measurable time, to a shared sense of inner, experienced time. (I investigate the particular way our informants achieve this in Chapter 5). Musicologists, such as Berliner (1994), use the concept of groove to describe this phenomenon in jazz ensembles.

To describe how a particularly intimate form of coordination is enacted in processes of group creativity, Sawyer uses the concept of "interactional synchrony" (2003, 2005). Interactional synchrony refers to the coordination of movements between individuals both in timing and form during interpersonal communication. The phrase was coined by Condon and Ogston (1967, 1971), who studied the ways in which people in dialogue synchronize their verbal and nonverbal behavior. They borrowed the term "entrainment" from physics to describe the process by which two people attune their rhythms to one another (Condon and Ogston 1966, Sawyer 2005). Research suggests interactional synchrony may serve important biological and psychological functions, helping children and parents to form strong emotional bonds and to facilitate social interaction (Tronick et al 1980, Sawyer 2005). Interactional synchrony builds mutual expectations, strong emotional connections and trust between people, deepening relationships.[18] Interactional synchrony is a "socially emergent complex systems phenomenon" and as such cannot be studied in individuals but requires observation of ensemble interaction (Sawyer 2005: 53). I use this concept to suggest how groups coordinate their activities to support the emergence of collaboration-as-conversation, because it is inclusive of musical performance (my primary case study context) without being specific to it; interactional synchrony appears in a broad range of

[18] See Professor Edward Tronick's study of interactional synchrony between mothers and babies as a demonstration of this. http://www.youtube.com/watch?v=dEziPGohFqI

highly coordinated, collective activities, including conversation.

Interactional synchrony is dependent on conditions that enable this form of coordination, such as close physical proximity and the potential to perform work in real time together.[19] It is also associated with strengthening interpersonal relationships, a process that Austin (2000) suggested positively impacts the emergence of ensemble. Group tenure, the duration of time a group has had to develop capabilities for performing interactional synchrony and building mutual expectations and trust (Edmondson 1999), and the related condition of bounded membership that ensures everyone knows who is in and out of the group (Hackman 1987, 2002), likely has an impact on a group's ability to engage in collaboration-as-conversation and build other capabilities. In studies of arts and other live performing groups such as those capable of performing interactional synchrony, researchers also generally address groups of a relatively small size (typically less than 10-12, and no more than 20); the size should be appropriate to the task (Hackman 1987). A high degree of task interdependence—a common feature of high-performing teams—must also be a condition of the work for interactional synchrony to be relevant (Wageman 1995).

As a final condition of interactional synchrony, I add "shared cultural norms and beliefs" to the list. Sawyer (2005) finds that "synchrony is much harder to attain if the participants are from different cultures" (52), a statement supported by small group studies. Groups benefit from shared cultural norms and beliefs. Hackman (1990) tells us that group norms should be "clear and strong enough to regulate group behavior efficiently, thereby making coordinated action possible" (11). Levine and Moreland (1991) explain that a group's culture plays a critical role in the socialization of new members, given that it embodies the task and social knowledge that new members need to adopt in order to fully participate. At the same time, norms have also been shown to constrain innovative behavior (Barker 1993; Muthusamy et al 2005). We are well advised to stay aware of this risk to creative/innovative behavior, associated with a too-homogeneous culture, as well as perhaps too much "regulation" and emphasis on "efficiency", in further study, and to investigate whether and how informants experience a tension between norms and methods for ensembling.

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[19] Experiments in achieving interactional synchrony and a sense of shared presence, between geographically distributed performers and audiences, are recently occurring; see for example the "Point 25" project, as reported by Handberg et al (2005).

To synthesize this discussion of theory related to Collaboration, including the conditions and methods for calling the quality of collaboration-as-conversation into being, I suggest **Figure 2.3.**

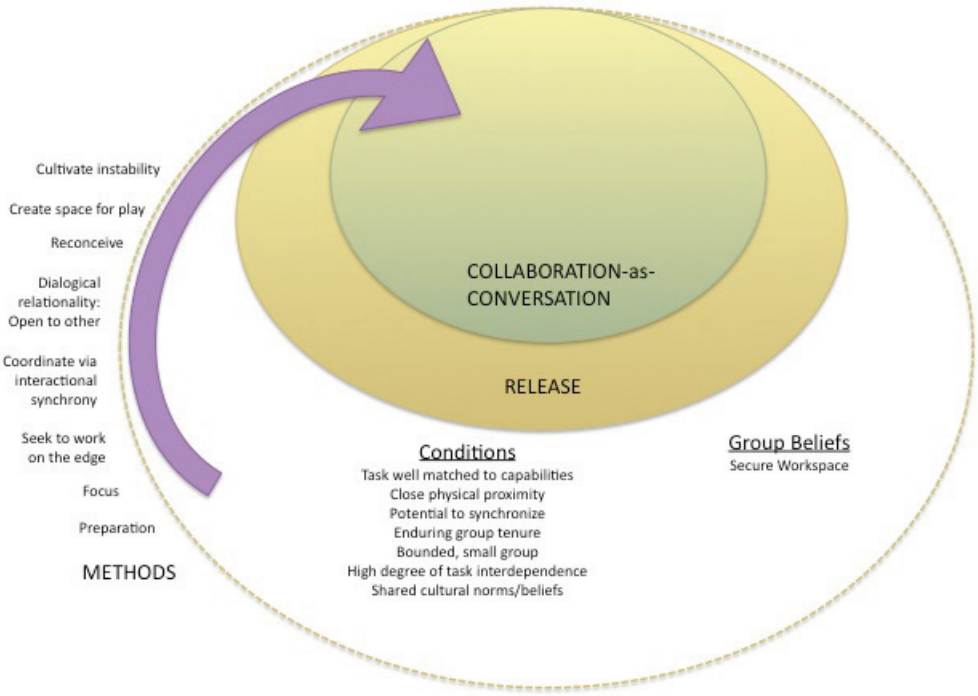

Figure 2.3: Elaborating the framework, based on the quality of Collaboration

Ensemble

Austin and Devin (2003) suggest that the quality of Ensemble appears only when individuals surrender their attachment to parts in pursuit of more interesting wholes. "[E]nsemble-playing," Austin and Hjorth tell us, is "the state in which conflicting intentions, logics, and other forces are reconceived into wholes greater than the sum of their parts" (2012: 32). Here ensemble appears in its verb form, as a process of enacting work that calls the quality into being and (importantly) sustains it: *ensembling*. "Ensembling is genuinely

relational; a property of neither the one person…nor the other…rather an incorporeal attribute of the relation (collectively becoming)" (Ibid: 33). Austin and Hjorth (2012) suggest performing the sociality of collaboration-as-conversation can potentially call the event of ensemble, or "ensembling," into being. Guarneri Quartet first violin, Arnold Steinhardt, describes his experience of the relationship between the individual ego and the increasing sum: "The definition of a professional string quartet might be 'a never-ending succession of unsuccessful attacks on the individual's ego by an ever-stronger and more cohesive ensemble'" (1998: 107). The attacks may be "unsuccessful" – the musician maintains his ego (remember, multi-voicedness is critical to performing collaboration-as-conversation)—but as the collective becoming gains cohesiveness, the argument for relinquishing sovereignty becomes increasingly persuasive. In this interpretation, the qualities of the emerging whole—the event of ensemble—might also persuade individuals to engage in the behavior, or practice, of relinquishing sovereignty.

Aside from performing the methods that lead to collaboration-as-conversation, and the added act of relinquishing sovereignty, we get little help from theory that tells us how groups alter their methods to call that next quality, ensemble, into being. It may be the result of what might happen as relationships between group members strengthen over time, as Austin (2000) suggests, perhaps through the exercise of interactional synchrony and the practice of opening to the other. Austin and Hjorth help us by arguing that the appearance of ensemble-playing, at least in their empirical study, requires that ostensible ensemble members share an earnest pursuit of ensembling as an objective. They also suggest that relational intensity sustains the becoming-process: "Ensembling is held together by affect, by intensity in relations, and a 'suspension of action-reaction circuits and linear temporality' (Massumi 2002: 28) – the founding suspense, born in impingement, in which social creativity is made incipient" (2012: 34). This description again directs us back to the methods involved in performing collaboration-as-conversation, but at increasing intensities (something we need to understand better how to do). I make an attempt at reflecting that iterative process of revisiting methods at increasing intensities in **Figure 2.4**.

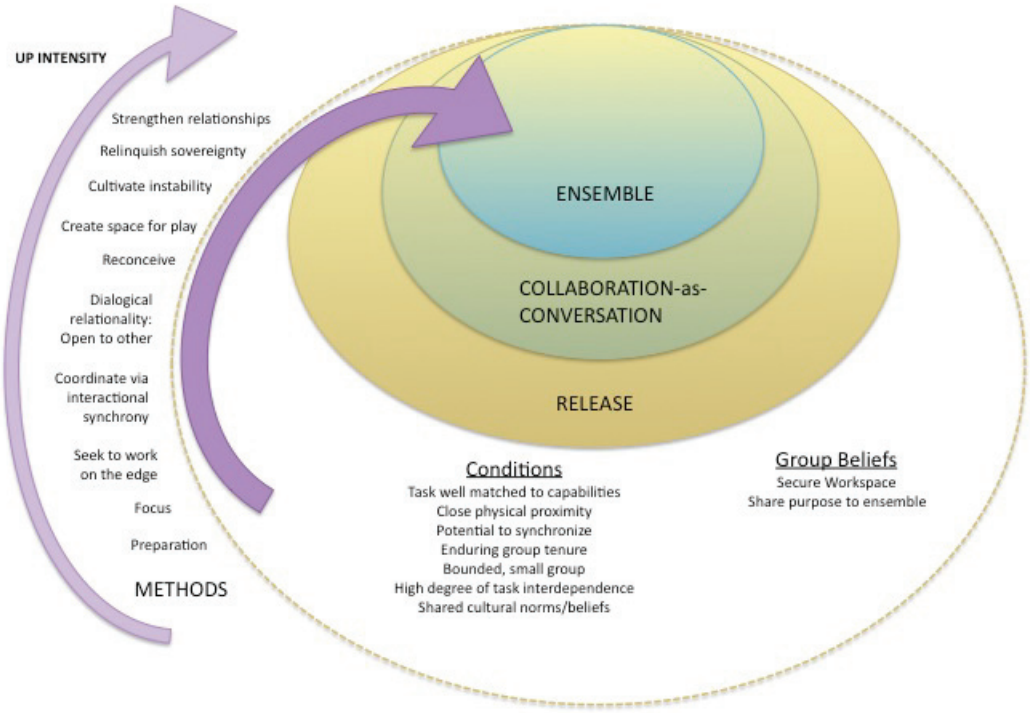

Figure 2.4: Elaborating the Framework, based on the quality of Ensemble

Play

While Austin and Devin describe Ensemble as the "penultimate" quality of artful making (2003: 128), Austin and Hjorth emphasize play as "the creative collective becoming" (2012: 34). Ensemble is "the virtually real quality in social creativity that may be actualized in complex relationality between the work, the people, the process, and the audience", this complex relationality being *play* (Austin and Hjorth 2012: 6). In other words, play is the actualization of ensemble; the quality of ensemble transitions from virtual to real when play happens. This argument suggests play is not something to strive for, via some new set of methods, but emerges, when it happens, out of ensembling. Citing Hjorth (2005), Austin and Hjorth suggest that "a space for play, creation and novelty is made incipient" in the "conversational creation of an ensemble" (2012: 4). Ensemble, and the process of ensembling, calls play into being, and play indicates that ensemble, the creative collective becoming, is happening.

But play also indicates that novelty is emerging. As Hjorth (2005) suggests, novelty, as well as play, is made incipient through the creation of ensemble. Austin and Devin (2003) likewise argue that novelty is the inevitable result of the activity of ensembling. They refer to play as "the form on which action converges, but which never locks in on perfect repetition" (Austin and Devin 2003: 171). This form is always novel, generated through ongoing iterative processes of conversational collaboration. In this understanding of play, play indicates something new is happening as a result of the activity of ensembling; the group activity is converging around a new form. This convergence suggests agreement, or consent, across members. Play "leads to the creation of a particularly intimate and effective organizational entity" (Austin and Hjorth 2012: 1). The act of converging on a form, of playing together, may be one way in which groups increase the intensity of their relationships, as well as the way in which they generate novelty.

This discussion of play suggests the addition of both a method and the likely outcomes of processes of ensembling; see **Figure 2.5**.

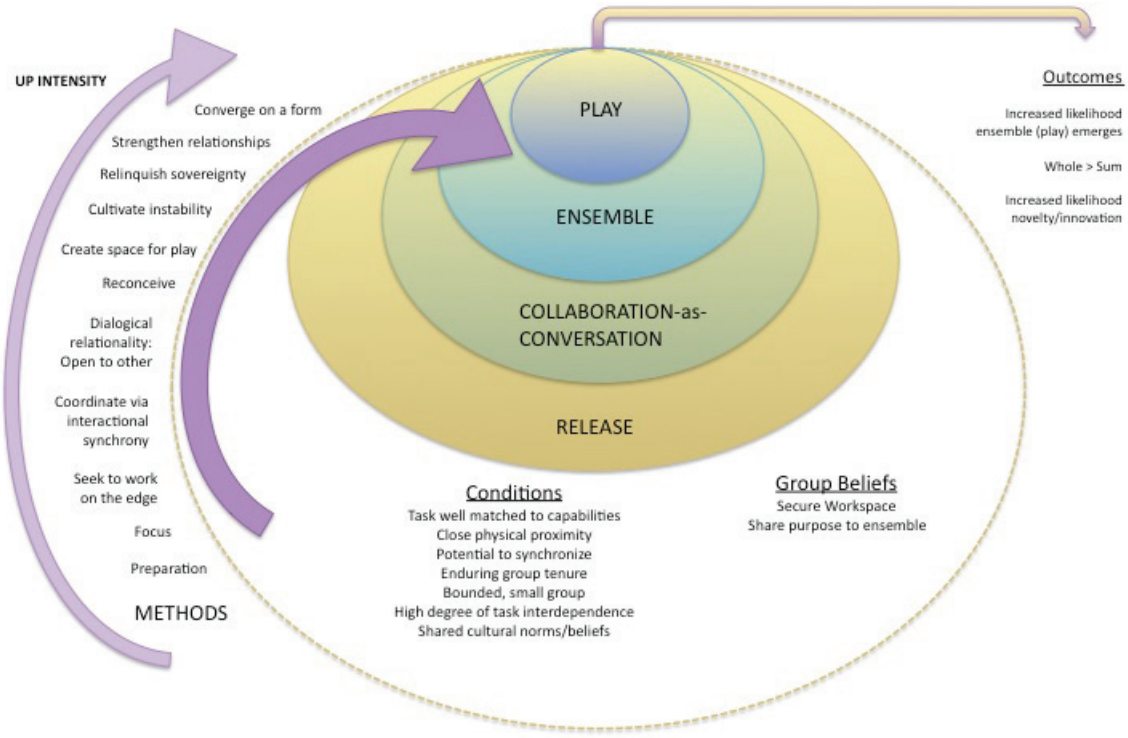

Figure 2.5: Elaborating the Framework, based on the quality of Play

Problematizing the framework

I've suggested this framework as one way to organize current understanding about ensemble, so that we might begin to get more familiar with these ideas and increase our understanding. Doing so, I not only point out potential problems in our understanding, but introduce some myself. My proposal of a progression of the qualities and methods that call other qualities into being seems to me to be a fair representation of current arguments. Nonetheless, it is problematic and should be considered carefully. I start the process of consideration here, and will continue to open up opportunities for addressing the usefulness and possible revision/reconception of this framework later in the thesis, and for future research. My intention is to explore the features of this framework—the methods and conditions in particular—in relation to new data, to generate better understanding. Therefore, it's better described as a "tentative" framework of ensembling.

While theory proposes a generous list of methods in which to engage towards the realization of ensemble and play, some of those methods are more vaguely described than others. Austin and Hjorth are specific in their description of how their informants at e-Types practice dialogic relationality, create space for play and cultivate instability: they provide specific examples. However, this doesn't necessarily help us know how to perform or to recognize these activities in other contexts. My argument, based on theory, that to ensemble requires groups to "up intensity" of the other methods is likewise unsatisfyingly vague. How do groups do what they were doing, but with more intensity? Are there particular strategies for increasing intensity? Do the methods look the same, when intensified, or do they begin to look like other practices? These are just a few of the ways that theory begs further elaboration through clear examples of work practices.

Directional movements suggested in this framework may also be problematic. In my discussion of the quality of ensemble, I suggested that theory and empirical data suggest a possible mutual relationship between methods and the emergence of qualities. In other words, while methods are geared towards calling certain qualities into being, the emergence of those qualities may in turn encourage group behaviors and practices. In the instance of ensemble, it seems that the emergence of a compelling whole greater than the

sum of parts may persuade individuals within the whole to relinquish sovereignty, where Austin and Devin (2003), if I read them correctly, had seemed to suggest relinquishing as an activity that led to the emergence of ensemble. There may be other directional movements in the framework that we can challenge. The same mutual emergence may be active between the methods and realization of collaboration-as-conversation. As the process increasingly exhibits qualities of multiplicity and instability, the performance of dialogic relationality may increase. What matters is that other responses do not occur, such as methods or behaviors that would seek to stabilize or limit the conversation (or if they do occur, then we need to understand why and to what effect).

Another example: In his study of jazz musicians, Berliner (1994) describes how "the groove" enables musicians to relax and open themselves to full expression of their ideas, and to open to the ideas of others and talk through the music. (1994: 389) "Within the groove, improvisers experience a great sense of relaxation, which increases their powers of expression and imagination. They handle their instruments with athletic finesse, able to respond to every impulse." (Ibid: 389). This evidence suggests that interactional synchrony, which I've placed in the terrain of collaboration-as-conversation, assuming release as a pre-requisite, might actually help groups and their individual members to achieve release and to direct their attention productively within the conversation.[20] Again, we see an argument for the mutual emergence of qualities and methods.

Beyond such mutual interplay between the methods and their qualities, influence may leap further afield in our framework. Austin and Devin (2003) do suggest that these qualities emerge together, while also suggesting the progression I outline. But the emergence of play seems to challenge our progressive understanding of the qualities. Austin and Devin suggest that when groups play, the activity of play in itself becomes both the form of making (part of the process) and the outcome manifest in the interaction between maker and customer (2003: 170-171). Therefore, we need to be careful to differentiate between "play" that is an emergent quality, a realization of ensemble, and "play" that is an activity inherent in the form of getting there. It's possible that the quality or activity of play may emerge at any moment in the process, and by emerging, might encourage groups to open to the others with whom they play, introduce multiplicity into the dialogue, and surrender

[20] Here I use "groove" as a variation on the method of interactional synchrony; groove can also describe a peak-performance state similar to ensemble and play. I discuss this further in Chapter 5.

their own objectives for the great appeal of the emergent thing.

Finally, in the discussion of play, uncertainty remains as to the relationship between the emergence of the quality of ensemble and that of play. If play is the actualization of a virtual ensemble, we may ask how special groups experience the difference between virtual and actual. Do participants recognize ensemble by the event of play, or by experiences of relational intensity, or by the emergence of a whole greater than the sum of parts, or by some other criteria? We may increase our understanding of the difference between ensemble and play by investigating how special groups recognize these qualities.

Summary

In this section, I have used theory to address my research question, "How do work groups ensemble?" and synthesize what we know so far about this special process of collaboration. I use theory to suggest that ensembling is the enactment of an interdependent (and often mutually emergent) set of behaviors and methods that constitute a special process of collaborative creativity, by which groups realize ensemble and play. Out of this synthesis, we've learned about a set of methods and behaviors that seem to cause the qualities of release, collaboration, ensemble and play to emerge. I summarize these methods in **Table 2.A**. Theory also suggests that a group belief in a shared purpose to ensemble matters to its emergence (Austin and Hjorth 2012), and that a shared belief in a secure workspace is critical (Edmondson 1999). We've learned at least one example of what causes processes of ensembling to break down: Austin and Hjorth (2012) provide an example in their study of how a single dominant logic disrupts the conversation critical to ensembling. I'll look for other examples in my investigation of ensemble.

In addition, we know something about the conditions for ensembling. I've developed a list of conditions, summarized in **Table 2.B**, that seem to be critical to our understanding of ensembling so far, to which I add, based on our discussion of the work in high-performing teams, three additional conditions:

1. Some degree of ***context support***, such as sufficient resources and access to

information, is presumably needed for a special group to thrive (Hackman 1987, 2002; Edmondson 1999), although the specifics of the kind of context support that best supports ensembling are yet vague. Ensembling may happen within an organizational setting, such as happened at the design firm e-Types (Austin & Hjorth 2012), or it may happen outside of an organizational setting; string quartets are one example. Sufficient resources in terms of time, people and materials may be more critical to groups that ensemble than organizational reward systems that reinforces achievement; the latter may in fact *inhibit* ensembling, as it poses a threat to creativity by emphasizing extrinsic over intrinsic motivation (Amabile 1996).

2. Groups that ensemble monitor and manage their own work process and progress, making them an example of self-managed teams (Hackman 1987, 2002; Gilboa and Tal-Shmotkin 2012). They are also likely to be self-designed, determining their own composition and organizing resources to execute their task. They may also be self-governing, that have full responsibility for the work, including determining the overall direction/objectives for the work (Hackman 2002). As any of the above, they require the ***autonomy*** or authority to engage in work that is, at minimum, self-managed/led (Wageman et al 2012; Hackman 1987, 2002).

3. In order to motivate and direct self-led work, special groups also need ***a clear, compelling (i.e., meaningful) goal*** or direction for the work (Hackman 1987, 2002; Sawyer 2007; Bennis and Biederman 1997).

I do not include the condition of "shared commitment" to the goal (Hackman 1987), as I believe it appears in the framework already in the form of the group's belief that members share the purpose to ensemble.

Based on this theoretical discussion, I suggested a tentative framework of ensembling (see **Figure 2.6**), which I intend as useful to increasing our understanding of ensembling, but I've also presented as problematic and in need of further investigation. In Chapter 5, I will engage new data in dialogue with theory, to seek out variation and elaboration of these theoretical methods and refine our tentative framework in order to better represent the ways in which our expert informants think about their work. I'll start

that investigation with a brief discussion of how performing artists describe peak performance experiences, then hone in on how informants describe their experience of "ensemble" as a peak performance experience, to get a clearer idea of how it is recognized and how it motivates their work. In Chapter 9, I will revisit this framework to see how my investigation into ensemble in stretched conditions has contributed new understanding.

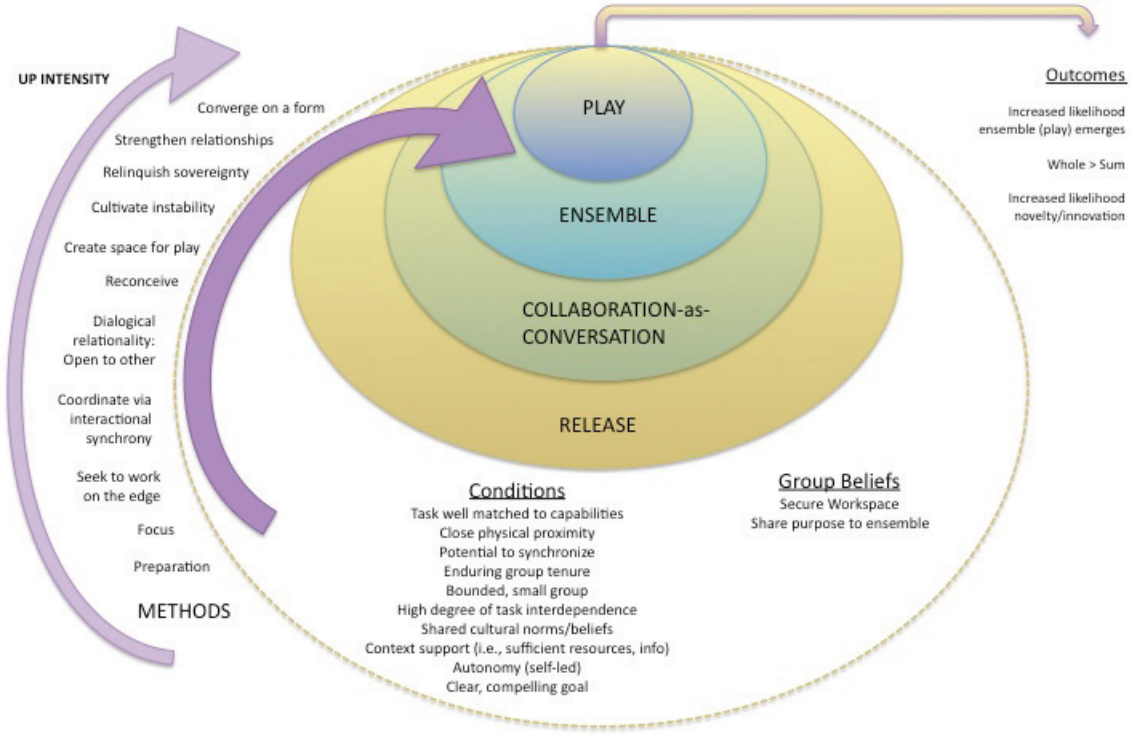

Figure 2.6: Tentative Theoretical Framework of Ensembling

Method of Ensembling	**Source of method in literature**	**Description of method in literature**
PREPARATION	Austin & Devin 2003; O'Donnell & Devin 2012	Activities to master craft/ fundamentals that allow for reflexive action (A&D 2003); Preparation "involves learning and practicing whatever you need to know and do in order to be ready to learn whatever needs to be learned and do whatever needs to be done" (O&D 2012)
FOCUS	Austin & Devin 2003; O'Donnell & Devin 2012; Sawyer 2007 calls this "concentration"	Exercising "skill at directing attention away from a source of tension (A&D 2003: 88) in order to become "comfortably aware" and "productively focused" (Ibid: 90)
SEEK TO WORK ON THE EDGE	Austin & Devin 2003	Motivation to work in the zone of discomfort in order to achieve learning, discovery, creative action (2003: 123-124)
COORDINATE VIA INTERACTIONAL SYNCHRONY	Sawyer 2005, 2003; Condon and Ogston 1967, 1971; Schutz 1964; Weeks 1996	Interactional synchrony is "rhythmically coordinated interpersonal interaction" the social processes by which people synchronize verbal and non-verbal behaviors (S 2005: 52); it involves "living together simultaneously in specific dimensions of time" (S 1964)
MAINTAIN DIALOGICAL RELATIONALITY, *i.e., via opening to the Other*	Austin & Hjorth 2012	No one logic, idea or person dominates, allowing for opposing ideas to become integrated (A&H 2012)
OPEN TO/ EMBRACE OTHER, *i.e., via deep listening*	Austin & Hjorth 2012; O'Donnell & Devin 2012 and Sawyer 2007 call this "deep listening"; Seddon & Biasutti (2009) call this "empathetic attunement"	Members open themselves to being affected and "include the Other's work as part of [their] own" (A&H 2012); Deep listening is a demonstration of this: to empathize with the Other, "so that the [Other's] materials enter your mind…as material for new thoughts and actions" (O&D 2012)
RECONCEIVING	Austin 2000; Austin & Devin 2003; Austin & Hjorth 2012; O'Donnell & Devin 2012	"an iterative process in which performers generate a new sequence of rehearsal events from holistically combining the last rehearsed sequence with new information, ideas, and materials" (A 2000: 10); doing so, they "make new, unpredictable ideas" (A&D 2003: 169)
CREATE SPACE FOR PLAY, *i.e., via opening process to other motivations and practices*	Austin & Hjorth 2012; Hjorth 2005	Establishing "spaces for creativity" (H 2005: 394) within the organizational order, opening the organization to do things for reasons other than economic; new practices are invented and work transformed in this space (Ibid)
CULTIVATE INSTABILITY, *i.e., via inviting multi-voicedness*	Austin & Hjorth 2012; Austin 2000 and Austin & Devin 2003 talk about bringing divergent ideas in	"conversation does not deny or resist the instability of dialogical relationships" but cultivates "multi-voicedness" or difference and conflict (A&H 2012); Even seemingly incompatible ideas that inevitably arise between actors are "good", in that they are part of "the energy that propels the process" (A 2000:20)
RELINQUISH SOVEREIGNTY	Austin & Devin 2003	Group members "begin to see their particular effort as part of a larger and more expressive whole thing" and relinquish sovereignty (ownership) over their own contributions (A&D 2003: 128)
STRENGTHEN RELATIONSHIPS/ INCREASE	Austin 2000; Austin & Hjorth 2012; see also, citations for Interactional synchrony	Ensemble "forms gradually as personal relationships strengthen" (A 2000: 9); the "mutual tuning-in" (S 1964) process involved in interactional synchrony facilitates

RELATIONAL INTENSITY – *i.e., via interactional synchrony or play*		the development of mutual expectations, strong emotional connections and trust between people; Play "leads to the creation of a particularly intimate and effective organizational entity" (A&H 2012)
CONVERGE ON A FORM	Austin and Devin 2003	This activity happens in the context of play; Play is "the form on which action converges, but which never locks in on perfect repetition"(A&D 2003)
UP INTENSITY – *how?*	Austin & Hjorth 2012	"Ensembling is held together by affect, by intensity in relations…" (A&H 2012)

Table 2.A: Methods of Ensembling

Condition of ensembling	**Source of condition in literature**	**Description of condition in literature**
Task well matched to capabilities	Csikszentmihalyi 1990; Hackman 1987	"Individuals members have high task-relevant expertise" (H 1987; Challenge of the task should be well-matched to the skill of the performer (C 1990).
Close physical proximity	Sawyer 2005; Kiesler &Cummings 2002	Close physical proximity is needed to enable interactional synchrony; has range of benefits for interdependent group work: improves group commitment, builds stronger social bonds and group identity, and "is the most powerful medium known for coordinating work within an interdependent group" (K&C 2002:64)
Potential to perform synchronous work (achieve interactional synchrony)	Weeks 1996; Sawyer 2003, 2005; Condon and Ogston 1967, 1971	Interactional synchrony depends on the possibility of synchronizing verbal and non-verbal behaviors to enable interpersonal communication.
Group tenure, enduring	Hackman 2002; Sawyer 2003, 2007; Edmondson 1999 (time-limited vs. enduring group tenure); Salas et al 2005; etc.	Group tenure, the duration of time a group has experienced stable membership to develop capabilities, (i.e. for performing interactional synchrony), and for developing shared mental models (S+ 2005), shared commitment, and a shared pool of knowledge. "[G]roup flow is more likely to happen when players know the performance styles of their teammates and opponents" (Sawyer 2007: 51)
Bounded, small group	Hackman 2002, 1987; Wageman et al 2012	"If group members are to work interdependently on the task, it must be clear who is a member…and who is not" (H 1987: 336): Group size should be appropriate to the task: "large enough to do the work…but no more than that" (H 1987: 327).
High degree of task interdependence	Wageman 1995; Hackman 2002; Murnighan and Conlon 1991	Essential feature for teams is a task requiring people to integrate their work and be collectively accountable (H 2002); "Highly interdependent groups…exhibit high-quality social processes, extensive mutual learning, and a sense of collective responsibility for performance outcomes" (W 1995: 174); "String quartets are particularly intense work groups. Members are reciprocally interdependent (Thompson, 1967)" (M&C 1991:165)
Shared cultural norms/beliefs	Sawyer 2005; Hackman 1990; Levine & Moreland 1991; shared culture relevant to interactional	Groups benefit from common language and culture; it's critical to the introduction of new members: a group's culture embodies the task and social knowledge new

	synchrony	members need to adopt (L&M 1991); "synchrony is much harder to attain if the participants are from different cultures" (S 2005: 52)
Context support (sufficient resources, access to information, etc)	Edmondson 1999; Hackman 1987	Some degree of context support (e.g., sufficient time, people, materials) needed for work to proceed, other kinds of support, such as extrinsic reward systems, may be problematic.
Autonomy (self-led)	Hackman 1987, 2002; Wageman et al 2012; Muthusamy et al 2005; Gilboa and Tal-Shmotkin 2012 describe string quartets as examples of SMTs	Self-designed and self-led teams have the authority to design and manage their own conditions, work tasks and processes; "[SMTs] foster greater autonomy, increase communication among team members, and intensify their commitment to the team and the organization, which in turn enhances innovative behaviors" (M+ 2005:53)
Clear, compelling goal	Hackman 1987, 2002; Sawyer 2007; Bennis and Biederman 1997	A task that is clear, challenging and consequential/meaningful motivates and energizes a team, and enables self-managed goal-directed work (H 2002).

Table 2.B: Conditions of Ensembling

CONCLUSION

In this chapter, I began my investigation into the research question, *How do work groups ensemble?* by starting more broadly with an investigation into what we know about the work of creative and high-performing small groups, and how it is that we have studied them so far. While surveying the richness of our knowledge, particularly as relates to the study of traditional (bounded, co-located) high-performing groups, I also brought some key questions to the fore. We have yet to provide ourselves with precise distinctions between different forms of collaboration, including forms of creative collaboration, to increase our ability to investigate and understand the diverse ways in which this activity is being manifest. We also have yet to sufficiently understand the *processes* by which collaborative creativity is enacted. Either groups working in distributed and digitized conditions are largely failing to perform "creativity" (and to some degree "collaboration"), despite the explosion in new technologies supporting such work, or (more likely) our research is falling sadly behind practice. The framework of ensembling I propose as one way to synthesize what we know about that special form of group creativity begs further understanding, particularly in regards to understanding the relationships between the methods, conditions,

and qualities of ensembling.

In the next chapter, I introduce my empirical setting and the primary case study from which I generate, in the course of this thesis, increased understanding of ensembling and how it is performed. You might begin to imagine, through my description of the unique performing arts project I studied, in which groups expert at ensembling attempted to do so in "stretched" (something like "distributed") conditions, how studies that focus on generating detailed understanding of specific group processes can contribute to our ability to address the shortcomings in what is generally a rich body of research with an exciting future ahead.

Chapter 3. EMPIRICAL SETTING AND CASE

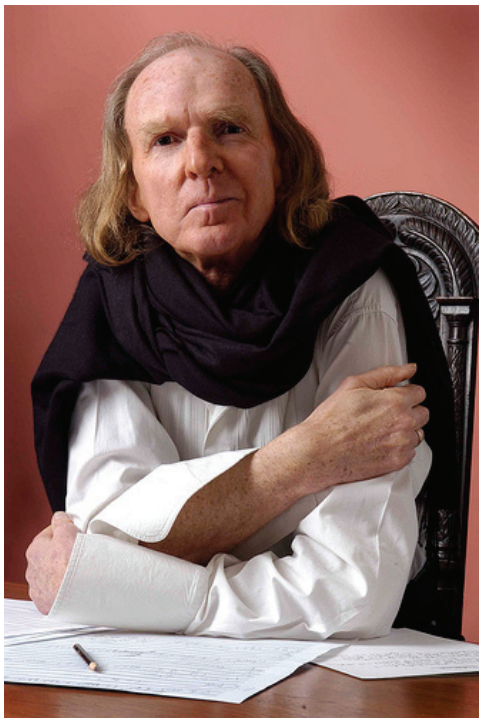

Image 3.1. Sir John Tavener[21]

I have in mind one day, and I don't know how I'm going to do it, but to write a music which deals with the dying process. And I have the idea of four string quartets playing from the dome of some either church or very beautifully resonant building, and the sound being very distant. Them being in cross formation, therefore connecting Christianity with Hinduism, because they are actually placed in the formal symbolism of the cross. But the piece actually dealing with the four states of Atma…There is a state which is connected to waking. There is the state which is connected to dreaming. There is the state which is connected to deep sleep. And then there is what is beyond. And I want to try and make a piece based on – I've long wanted to do this, and I don't know whether I'll ever do it—but that really is a piece about, you could say liberation, or you could say about the process of dying.

- Sir John Tavener, Composer (Robertson and Tavener 2007)

[21] Photo retrieved from http://www.flickr.com/photos/johntavener/5862443585/in/photostream/

In 2007, contemporary composer Sir John Tavener, known for challenging Western musical aesthetics and creating minimal works of a spiritual nature, composed *Towards Silence: A meditation on the four states of Atma*. Tavener described his 35-minute composition as a simultaneous meditation on the Four States of Being according to the Vedanta, and the four states of dying (Tavener 2011). Written for four string quartets to play together, as one larger ensemble, it presented a new musical form that, insofar as participants knew, had never been attempted. Tavener describes the construction of the score as "very rigorous" and the configuration in which these quartets, accompanied by a Tibetan Singing Bowl player, should perform as a critical feature of that structure (Tavener 2011). In the score, Tavener instructs the four quartets to arrange themselves in four clusters, in raised galleries, surrounding and preferably unseen by the audience, with the Tibetan Bowl sounding from a higher level every nineteen beats. While the meditative experience of listening to *Towards Silence* takes audience members "near to the edge of death" (Kenyon 2010), the *making* of this performance presents another kind of challenge to musicians. String quartets, expert at their own particularly intimate process of making music, that involve a relatively standard physical arrangement, are meant to take on a new problem of collaboration.

The premiere performances of *Towards Silence* in the United States (US) and the United Kingdom (UK) provide the setting for my empirical study. In the first two sections of this chapter, I provide contextual and background material about string quartets and the *Towards Silence* project. In the third section of this chapter, I construct a baseline description of the phases of development and work that went into making these premiere performances, based on my observations in the field, as I followed the project.

Musicologists and ethnomusicologists have written expertly on the culture, conditions and careers of string musicians and their field (see, for example, Mueller 1951, Faulkner 1971). That is not my objective here. In the first section that follows, I simply wish to prepare the reader, regardless of prior experience, to step into the world of string quartet musicians and to better understand the people engaged in, and the planning and the work that went into, this project. To do so, I begin this chapter with a general description of string quartets, their training, careers, and membership structure. I discuss the ways in which quartets usually work, including some important methods unique to a featured quartet in this study, The Medici String Quartet. In the second section of the chapter, I provide

background related to the origins and development of the *Towards Silence* project, including information about the participants involved.

BEING IN A STRING QUARTET

Image 3.2. Paul Robertson addressing faculty at Harvard Business School, 2007[22]

> *In music the most perfect plutonic family is the string quartet. That's why it was created…It's about this opening, and the release of boundaries, in order to achieve a kind of relationship of excellence, of beauty, that isn't really achievable in my belief in any other music or any other art form…It is the music of the dynamic of the family.*
>
> - Paul Robertson, first violinist of The Medici String Quartet (Robertson 2007)

A string quartet is a chamber musical ensemble consisting of four string instrument players, typically two violin players, a viola player and a cellist. Most major music composers from the late 1700s onward have written for string quartets, and most string quartets perform a repertoire that includes classical pieces of a more traditional form and modern pieces that present new forms. *Towards Silence* provides an example of the latter. Composers and musicians alike favor the string quartet as an intimate and prestigious form. String instruments come close in quality to the human voice, and the four-part harmonic dialogue

[22] Photo by www.evephotography.com

of quartet music becomes, in the hands of expert composers and performers, a way of expressing deep emotion and relationship through dialogue, without using words (Ciabattoni 2004). Paul Robertson, first violin of the Medici String Quartet, chose to pursue a career as a quartet musician because he was "intensely in love" with the intimacy of relationship that could be created in a group of four equals, and determined it to be "the highest aspiration for a string player" (Austin and O'Donnell 2007:4).

Becoming a member of a string quartet is frequently a career-defining choice. While the careers of string musicians may encompass a range of experiences and affiliations, they usually decide during conservatory training whether to aspire to become a soloist, an orchestra player, or a member of a chamber ensemble. The decision is both informed by and proceeds to shape that musician's identity and skills. Training for string instrument players, which begins at an early age, focuses on solo repertoire and socializes young musicians into the expectations of a virtuoso soloist career (Faulkner 1971:53-54), despite the unlikelihood that many will actually succeed in such a competitive pursuit. Robertson, the self-professed "'best player of [his] era'," showed early promise as a soloist, but disliked the egotism involved (Austin and O'Donnell 2007:4). He was equally put off by orchestral playing, which he experienced as homogenizing. As Faulkner reports in his study of studio musicians, string players frequently ascribe orchestras with the qualities of anonymity and unhappiness (1971:61), perceiving themselves to be "just a small cog in a big piece of machinery" (Ibid: 64). Musicians claim repetition and the obligation to follow the leadership of sometimes uninspiring conductors puts their skills at risk of deterioration (Ibid: 66). The string quartet, alternatively, presents opportunity to experience autonomy, to express a distinctive voice in dialogue with peers, to play an equal and active role in leadership, and to continually develop skills.

Despite the appeal, for musicians who have, from childhood, developed their identities as unique individual talents, being in a string quartet can also be "a form of hell" (Steinhardt 1998). The individual musician is forced to share the spotlight, relinquish absolute control, and suffer "'a never-ending succession of unsuccessful attacks on the individual's ego by an ever-stronger and more cohesive ensemble'" (Ibid: 107). String quartets frequently form during conservatory education, as common training supports the development of a shared and distinctive style (Bashford 2003: 14), and members have had time to begin to build relationships through extensive hours of rehearsal together. These

early rehearsals can be fraught with difficulty. Robertson formed the Medici Quartet with colleagues at the Royal Academy of Music and admitted that their first rehearsals together were "a horrible mess" (Austin and O'Donnell 2007: 4). He was 17 when the quartet formed and nearly 21 when he considered them prepared to launch their career with a series of concerts culminating in their debut at Wigmore Hall.[23] As Guarneri String Quartet violinist Arnold Steinhardt describes his first year with colleagues:

> We had come together with a goal in mind, the performance of string quartets, and reaching it depended on our being able to break through our heavily fortified attitudes in order to understand and relate to each other (Steinhardt 125).

The goal of Guarneri's early work together was to "[smooth] out enough of the rough edges of our four personalities to mesh properly but not so many as to make the surfaces smooth, bland and uninteresting" (Steinhardt 125).

Financial prospects are rarely promising for string quartet musicians; even those who achieve international recognition experience financial difficulty. Robertson expressed the economic disadvantage quartets typically face in the following joke:

> How do you become a millionaire as a string quartet player?
>
> Start as a billionaire (Robertson 2007).

String quartets, like many performing artists, are typically represented by an agent. Income arrives in the form of concert fees and recording contracts, which can be supplemented by university positions or other teaching. Sometimes members take on studio or other work for hire, though not without compromising their cultural capital or peer opinion. Faulkner describes a merciless dichotomy, instilled in string musicians by the socializing force of early training, between committing every action in service of the work and selling-out for financial gain (1971:56). In his career, Robertson was motivated by a "higher aspiration of artistic excellence." Speaking to a group of MBA students at Harvard Business School, he expressed his attitude towards financial considerations as: "Bugger the money, you do what's right.'" (Robertson 2007). In Robertson's case this meant often turning down profitable recording contracts he didn't believe the Quartet was prepared to perform up to his expectations for excellence. Robertson preferred to stay focused on the pursuit of

[23] Wigmore Hall is considered to be the most prestigious performance venue in the United Kingdom.

artistic integrity and generally expected money to follow. (Austin and O'Donnell 2007: 11). Rather than attending to critics or audiences, Robertson measured success based on his own recognition of reaching a certain level in their understanding, as a quartet, of a piece of music, a process that might take 10 years (Austin and O'Donnell 2007: 11).

Quartet music itself dictates to some degree the role each instrument should take in relation to colleagues, apart from personality dynamics or skill. The first violin usually plays the melody line in the higher register of notes, and since the high voice is often required by the score to take the musical lead, the first violin is traditionally considered the leader of the ensemble. The second violin plays the lower notes in the harmony, requiring this musician to play a stable, supporting role within the ensemble, a complex task requiring intermittent and discreet leadership of the other players combined with generous support of the first violin. One informant described this position as "more relational" than the first violin position; she found she had to respond to more things within the playing and had a greater range of things to do. While required to project a rich sound, the task of the viola player is typically less technically demanding than the tasks of others. The cellist must be firm and sure, particularly in regards to rhythm and intonation. The very best will combine these qualities with a poetic flexibility and superb technique. The cello parts in many late classical and romantic repertoire are often only slightly less demanding than the first violin, and many of the great melodic lines in the quartet masterpieces are given to the cello (Austin and O'Donnell 2007: 12).

Robertson shared a well-known joke that underscores the tendency to stereotype string players by their position and to anticipate tensions to emerge between them: "a string quartet is made up of a good violinist, a bad violinist, a failed violinist and someone who hates violinists" (Austin and O'Donnell 2007: 4). Quartets naturally differ in the type and balance of personalities that make up their membership. First violins are notoriously characterized as dominant, prima-donna-like personalities, second violinists as more supportive or submissive, viola players as generally less flamboyant (Austin and O'Donnell 2007: 12), and cellists as reliable. Though risky, if well matched and managed it is generally thought to a quartet's advantage to have two strong personalities among members to generate creative tension. In selecting his colleagues from amongst fellow students, Robertson highlighted the following qualities as desirable: the second violinist was solid and reliable but quiet, the violist had "considerable intelligence and panache" along with

strong musical views, and the cellist was "sweet-tempered" (Austin and O'Donnell 2007: 4). When membership changes in a quartet, the personal skills, style and characteristics of the new player have a significant impact on the collaborative dynamics of the group (Austin and O'Donnell 2007:9).

How string quartets usually work

Musicians and musicologists have described the work of string quartets in great detail, and for audiences with different degrees of expertise and interest. The work of the Guarneri String Quartet, for instance, has been explored with particular depth for general audiences: Blum (1986) draws heavily on direct conversations with the musicians in his description of the work of this virtuoso ensemble, and Guarneri's first violinist Arnold Steinhardt offers readers additional insight in his autobiography (1998). Our own investigation of the work practices of Robertson and The Medici String Quartet (Austin and O'Donnell 2007) both confirm findings in other sources and provide unusual new examples of practice.

String quartets invest heavily in rehearsal. A common schedule can involve six-hour rehearsals a day, seven days a week, in addition to individual work (Murnigham and Conlon 1991: 166). Robertson admitted to being a "rehearsal junkie" (Austin and O'Donnell 2007: 7). In the first 15 to 20 years of their career together, the Medici Quartet musicians rehearsed four to six hours every day of the year, with three to four hours of individual practice between those rehearsals. Robertson estimated that to properly prepare a new piece, particularly a demanding composition such as a Beethoven quartet, it took an estimated 300 hours of group rehearsal (Ibid: 7).

Common to the work of string quartet musicians is the need to master the technical requirements of the score and to successfully address challenges of playing precisely in time together, with a shared stylistic integrity. While the ability to synchronize is critical to their work, these musicians do not consider coordination an end in itself, but a foundational capability to enact while aspiring to achieve a special quality in their performance: ensemble. String quartet musicians often describe ensemble as a perfectly synchronized and aesthetically balanced yet dynamic conversation between four distinctly articulated voices (Blum 1986; Moritz 2005). This special quality to which they aspire emerges from a highly attuned conversational process that involves group members in the activity of

listening deeply to and responding to one another's musical choices in the moment. To do this requires a high level of practice and preparation. World-class quartets spend years together mastering the capability of performing as a unified group, in the case of the Guarneri String Quartet, for example, developing over time a "complex system of leads" to sustain precision and unity with seeming effortlessness (Blum 1986: 10). Each new composition itself, and its specific technical demands, need to be learned and mastered to the degree that the musicians can perform the fundamentals reliably and focus attention on improvising in relation to the emerging choices they are all making. When they achieve this quality of dialogue, the informants say, they are "making music," and report an experience of "play."

String quartets work iteratively, continually trying out new ideas, and revising their previous opinion to incorporate new insight and the qualities of the emerging form. In a series of conversations and workshops with Robertson, I learned of Medici's particular approaches to the challenge of performing music of the "highest aspiration" of artistic excellence. These included elaborate forms of preparation such as mastering then "destroying" the music to unlock infinite variety in interpretive possibilities, strategies for injecting disruption into the work to raise the quality of shared attention and intentionality, and a habit of choosing "absurdly difficult" pieces that continually pulled the ensemble out of their comfort zone (Austin and O'Donnell 2007). In their work together, these musicians are importantly motivated to achieve a peak performance experience, in which they seem to think, breathe, and feel together as one (Blum 1986).[24]

Collective engagement in leadership is necessitated both in fulfilling the demands of the composition and achieving a quality of ensemble. While the violin family of musical instruments includes the violin, viola, cello and bass, the string quartet was conceived to consist of two violins, a viola and a cello, and excludes the bass. The reason for this describes the foundation of what it means to participate in a string quartet: the bass produces low-pitched tones and can't contribute to the melody, so it can't be an equal voice, whereas the string quartet is based on the idea that each instrument (and musician) participates as an equal partner, building a conversation based on harmony, not homogeny. The outcome benefits by emerging out of a dynamic creative dialogue between four equal

[24] I discuss the features of this peak performance and many of these methods in greater detail in Chapter 5 of this thesis.

voices, who each converse with what the others offer, contribute something new, and deepen their understanding of the whole. When this is the case, every member remains in an active state of readiness, prepared to take the lead at any moment, and to take it in new directions.

The practice of sharing leadership extends to other activities beyond the music, to include organizational tasks and decision-making processes in rehearsal. Two quartets participating in the *Towards Silence* project responded to my question of whether or not one member leads their group by referring to organizational activities. The Corigliano Quartet had recently decided to drop external management and self-manage. They shared responsibilities on a project-by-project basis, taking turns to serve as the contact person for various jobs. The Court Lane Ensemble, a newly formed group, took advantage of one another's personal strengths and assets to delegate responsibility as issues arose: the cellist had an iPhone, so he managed navigation; the first violin was the "driver" literally (he drove them to rehearsals) and metaphorically (driving, or leading, their collaboration). The Finzi Quartet had recently delegated administrative across key categories—e.g., head of travel, head of finance—based again on personal strengths. As part of this decision process, they had also held a full day "strategy meeting" to collectively determine the work they wanted to prioritize and to plan accordingly.

Having provided a brief introduction to the work life of string quartets, including project participants, I now shift focus to the specifics of the *Towards Silence* project itself.

TOWARDS SILENCE **PROJECT BACKGROUND**

> *John's score is a tour de force of such fragile boundaries. Sometimes full of energy and Rajas but more often tenuously hovering at the very edge of perception and audibility. I am convinced that all great art inhabits the edge, paradox and ambivalence of existence and is only then truly fulfilling its potential as a 'Soundtrack of the Soul'.*
>
> - Paul Robertson (Robertson 2009)

In August 2007, Robertson interviewed Sir John Tavener at a conference of The Scientific and Medical Network (Robertson and Tavener 2007). The two had met decades before, when Tavener composed "The Hidden Treasure" for the Medici Quartet. In conversation with Robertson, Tavener shared his vision for a new work he would like to write for four quartets. Despite knowing that Robertson had played his final concerts with the Medici Quartet earlier that year, Tavener asked that Robertson consider performing this new composition. Tavener's fascination with the potential relationship between the late stages of dying and the creative act captured Robertson's attention: "[Tavener] wanted to somehow describe in sound the very moment at which music comes from Silence – or may perhaps revert back into it." (Robertson and Tavener 2007). Robertson instantly considered the practical challenge of gathering four string quartets willing to work together, given that "first violinists [like myself] are notoriously temperamental prima donnas who cannot or will not collaborate." His solution: invite three talented young ensembles whom Medici would mentor.

Inspired despite himself, but still undecided, Robertson returned home to discover an email from Tim McHenry, producer at The Rubin Museum of Art in New York City. McHenry was in the midst of programming the museum's new annual series, "Brainwave," featuring conversations on the mind with 50 diverse artists and scientists, and was looking to add a musical component. Over the course of a phone conversation that afternoon, Robertson "found himself" describing Tavener's proposed project to McHenry, which well suited the Brainwave theme, and they agreed to enter into a co-commission of the piece, the Museum with Robertson's organization The Music Mind Spirit Trust. The Museum would host the world premiere.

Within days of settling the commissioning agreement, Tavener took off to Greece to compose. McHenry scheduled the world premiere for spring 2008, and Robertson met enthusiastic response from producers as he proceeded to arrange a string of following concerts around the UK and Europe. However, in December 2007 Tavener had a series of heart attacks related to Marfan Syndrome, a genetic condition from which he suffered, and entered intensive care. While the composition was judged by Tavener's editor to be sufficiently complete to perform, Robertson himself suffered a near fatal aortic dissection soon after (Press Release 2009). The two men spent several months in a critical state,

"balancing tenuously between life and death in the horrors of unconsciousness and clinical trauma" (Robertson 2009). The project was postponed.

By August 2008 Robertson had recovered sufficiently to revive plans for the project, his near death experience serving to intensify his interest in exploring the edge between being and non-being, both in terms of the human states of consciousness, and in terms performing music and silence. He had the following to say about his experience:

> At this terrible place (not at all similar in experience to the beautiful consolations of the near death experiences so graphically descried by Peter Fenwick in his research), the meeting place of being and non-being take on grotesque and dreadful forms and (at least for me) the inky black solace of deep unconsciousness seemed an altogether preferable alternative to the struggle for life…Although John must speak for himself in this, I can personally endorse the strange noumenal significance of how it is that physical manifestation springs from nothingness in extreme illness…Somehow and at every living moment it seems that nothingness 'speaks' into being. Although we all 'know' this theoretically, it is probably too overwhelming a concept for most of us to remain constantly awake to (Robertson 2009).

In the wake of Robertson's recovery, the other members of the Medici Quartet agreed to reform, and together identified those outstanding early-career string quartets with whom they wished to work. Having worked previously with Robertson on the development of the Medici String Quartet teaching case (Austin and O'Donnell 2007), I was invited to follow the project.

Preparations

Between February and July of 2009, two sets of string quartet musicians, led by the Medici String Quartet, organized in New York City, United States (US) and in and around London, England (UK) to perform *Towards Silence.* Concert venues included The Rubin Museum of Art in New York City, the Study Society's Collet House residence in London, Westminster Synagogue's Kent House, Winchester Cathedral, and St. Mary's Church in Petworth. These spaces presented a very diverse set of architectural features, from a 6-level spiral staircase to one of the largest Cathedrals in Northern Europe. Tavener's instructions for the

performance configuration being fairly explicit, calling for quartets to perform in a resonant space, "sounding unseen from high galleries", the project presented an interesting challenge for event producers at each of these venues. His directions were interpreted differently by each, often in collaboration with members of the Medici Quartet, and in many cases tickets were sold in advance on the basis of these designs. The musicians also expressed their own preferences for how to configure each event, at times in conflict with the producers' plans, in the interest of doing their best work "making music" and creating for the audience an experience uniquely tailored to the qualities of each space.

String quartet participants

The seven string quartets engaged for these performances included, most prominently, the Medici String Quartet, one of Britain's finest musical ensembles, who reorganized for the project after recently ending a 35-year career. During that career, Medici gained international renown, performing both a classic repertoire and premiering a host of new works; several contemporary leading composers dedicated compositions to them. They were also lauded for their unique performance innovations. They engaged in a series of dramatic collaborations with the Royal Shakespeare Company in London, to combine the performance of classical quartet music with readings by leading stage actors that revealed the relationships between composers' work and private life. In 1996, Channel 4 Television in the United Kingdom broadcast Medici's three-part series entitled *Music & the Mind*, which explored the relationship between music and human cognitive and emotional development and health. They also created two autobiographical projects that gave audiences insight into their private workings as a quartet, including the ways in which they handled conflict. They performed in more than thirty countries, gave regular radio broadcasts, and recorded over 40 records including a highly praised complete Beethoven quartets cycle for Nimbus Records. The Medici Quartet gave its final performance at the Harrogate International Festival in 2007, but reformed for this project (Austin and O'Donnell 2007; Medici 2012).

The Medici Quartet survived three changes in membership. Two founding members remained: first violin Paul Robertson and cellist Anthony (Tony) Lewis. Cathy Thompson, Medici's (third) second-violinist, and Lewis continued to work as professional musicians in the UK. Violist Ivo-Jan van der Werff, who had spent 28 years as a member of the quartet,

had since taken a full-time position as a professor of viola and chamber music at the Shepherd School of Music, Rice University, in Houston, Texas (see **Image 3.3**). When Robertson was unable to travel to New York for the US premiere performance of *Towards Silence,* Thompson played first violin in his place, and Medici invited Fenella Barton to join them as second violin. Originally from the UK and now based in New York City, Barton enjoyed an international career as a solo violinist and chamber musician, and was regularly featured on BBC Radio 3 broadcasts (Fenella Barton Biography 2012).

Image 3.3. The Medici String Quartet, during their career. (Left to right): Paul Robertson, Cathy Thompson, Ivo-Jan van der Werff, and Anthony Lewis[25]

Two sets of three quartets joined Medici, one set of American string quartets ranging from early career to well established, and one set of promising British ensembles either recently formed or newly formed for the sake of the project. While these seven quartets enjoyed varying tenure as groups, all musicians were considered top performers in their generation. Members ranged in age from early 20s to mid 30s.

The American quartets included the Jasper String Quartet, the Attacca Quartet, and the Corigliano Quartet. The Jasper Quartet originally formed at Oberlin Conservatory, and

[25] Photo retrieved from Robertson's personal archives.

began their professional career in 2006. They were quartet-in-residence at Yale University at the time of the project. Members included first violin J Freivogel, second violin Sae Niwa, violist Sam Quintal, and cellist Rachel Henderson. The Attacca Quartet formed at the Julliard School in 2003, making their professional debut in 2007. Members included first violin Amy Schroeder, second violin Keiko Tokunaga, violist Gillian Gallagher, and cellist Andrew Yee.[26] The Corigliano Quartet, a quartet particularly invested in and known for the performance of contemporary American music, formed in 1996 (Corigliano Quartet 2009). Michael Jinsoo Lim and Lina Bahn alternated in the roles of first and second violin. Violist Melia Watras and cellist Amy Sue Barson completed the group.

The British quartets included the Finzi Quartet, the Harpham Quartet, and the Court Lane Ensemble. The Finzi Quartet had recently formed at the Royal Northern College of Music; their debut at Wigmore Hall followed soon after the *Towards Silence* premiere. Members included first violin Sara Wolstenholme, second violin Natalie Klouda, violist Ruth Gibson and cellist Lydia Shelley.[27] The Harpham Quartet (since renamed the Calavari Quartet) formed at the Royal College of Music in 2008, and made their Wigmore Hall debut the year following *Towards Silence*. As the project began, they had lost one founding member of the group, their cellist, and introduced a new cellist between project phases. Members included first violin Anna Harpham, second violin Ciaran McCabe, violist Ann Beilby, and cellist Rowena Calvert. The Court Lane Ensemble (alternatively known as the Court Lane Collective and The Fifth Quadrant) formed for the purpose of the project only, though several members had worked with one another in previous partnerships and continued to work together in different configurations. Project participants included first violinist Simon Hewitt Jones, second violinist Ed Brenton, violist Drew Balch, and cellist Jonathan Bloxham.

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[26] As I completed this thesis in 2012, the Attacca Quartet had integrated a new violist, Luke Fleming, into their group.

[27] As I completed this thesis in 2012, the Finzi Quartet membership had changed dramatically; one original member, Lydia Shelley, remained (Finzi Quartet Biography 2012).

TOWARDS SILENCE REHEARSALS AND PERFORMANCES[28]

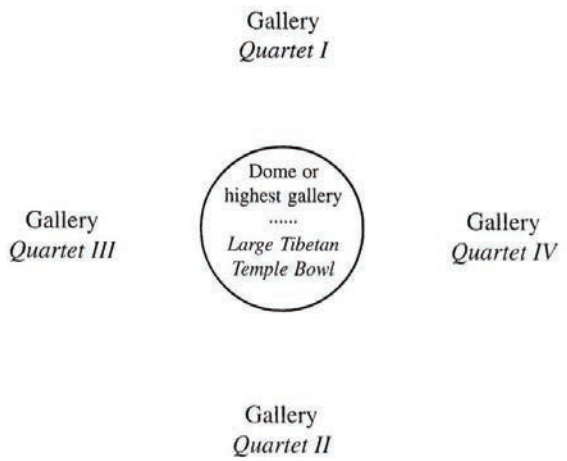
With Robertson as project leader, the string quartets addressed the project in phases, as follows: In February, the UK team of quartets assembled for two days of "pre-rehearsals" of the piece, with the main objective of understanding better how to make practical preparations for and rehearse this new work, in anticipation of summer performances. In April, the US team (which shared only three musicians from the "first" quartet in common with the UK team) gathered at the Rubin Museum of Art for five days of rehearsal culminating in one sold-out, live premiere performance. At this stage, the use of a simple coordinating technology called the "click-track," a pre-recorded cuing track delivered via wireless earpiece to one member (typically the first violinist) of each quartet, was instigated. In June and July, the UK team, implementing the click-track from the start, reassembled for four more days of rehearsals, followed by four evening performances (each preceded by 2-3 hour afternoon rehearsals in which new spatial configurations were tried) in four different locations in and around London.

Towards Silence, being a new form, necessitated an experiment that took the work of string quartet playing to the edge of a new frontier—as informants admitted, potentially beyond what would be possible for the quartets to achieve. In the introduction to his composition, Tavener calls for four string quartets to play together, seated in a cross formation, in a resonant building, "sounding unseen from high galleries" when possible, allowing that configurations will vary per venue (see **Image 3.4**). Robertson described the challenge this presents: "[Tavener has] written a score that is completely coordinated and orientated as an integrated ensemble, but then invited us, or actually demanded, apparently, that we sit apart. There's actually an essential contradiction there." To increase our understanding of the difficulty the musicians had to address to pull this off, we can consider the way in which spatial proximity impacts their work. First, their ability to work together depends directly on whether they are able to play in perfect time together and produce a balanced and integrated sound. Close spatial proximity becomes a crucial condition of this activity, insofar as it enables the musicians to hear, as well as see, corresponding visual cues. String quartets typically configure themselves at a maximum distance of about 9 feet between the two farthest members. Enlarging the size of the work

[28] A version of this case study has been published online, in the Journal of Business Anthropology (O'Donnell 2011b) and in a forthcoming book chapter (O'Donnell 2013).

group from 4 to 16 members, as Tavener did, naturally increases the distance between each member and the farthest member from them, at which point it becomes difficult for each member to hear every other member. Stretching the groups' configuration by placing them, for instance, on the landings of a 6-level staircase or at opposite ends of a 70-foot long ballroom, as the diverse event producers did in response to Tavener's directions in the score, increases the distance further, making it more difficult to hear, and now difficult as well to see, every other member. At a certain distance and in certain configurations, the laws of physics make it impossible for the musicians to play in time and produce a balanced and integrated sound, as they experience a delay related to the time it takes sound waves to travel, and their ability to hear one another becomes further confounded by architectural barriers and echolation. Thus, both their ability to demonstrate technical proficiency and their ability to "make music" – to listen deeply and respond dynamically to the collective sound, and thereby achieve their usual standards of excellence – were put at stake in this exercise.

Performance Layout



Towards Silence should be performed in a resonant building, with the Tibetan temple bowl placed in the dome (if available) or highest gallery. The positioning of the quartets will vary with the building, but as far as possible they should play from raised galleries equidistant from each other, sounding from above the audience.

Image 3.4. Tavener's directions for the configuration of *Towards Silence*

Pre-rehearsals begin in February 2009

Pre-rehearsals take place in the barn-cum-studio at The Old Farmhouse, Paul's home, in West Sussex (see **Image 3.5**). The musicians arrange themselves in an open arc, or half-circle, which over the course of the day gradually morphs into a full circle, the quartets ordered by number clockwise 1-2-3-4. (See **Figure 3.A.**) Paul, who doesn't feel well enough to play, spends the first few hours by "default" acting as a kind of conductor for the larger group from a seated position. He cues them when to start and offers feedback from time to time to individual musicians, though he's ultimately resistant to functioning as a leader in this way. He later describes it as antithetical to the work:

> The nature of the piece, the way it's composed…is such that it would be grotesque if there was only one person leading. And it would just be wrong. The music demands the initiative from [many]—and…it's not just first fiddles. There needs to be and should be and has to be leadership from every individual at different times.

For the time being, however, Paul acts the role of conductor, though he makes a point of differentiating his gestures from the strong, codified leads of a conductor to informal waves of the hand meant to suggest leads. The second violin of Q3 leans over to his first violin, remarking to her that the current leadership they are receiving won't be a normal condition of the work: "We're going to need to have something to latch on to; it's easy now with Paul to guide us." Conducting serves as a temporary support, so that practice can proceed, but it isn't proposed as a long-term solution. The musicians will need to find another way to sustain coordination.

Image 3.5. Paul's Studio at The Old Farmhouse

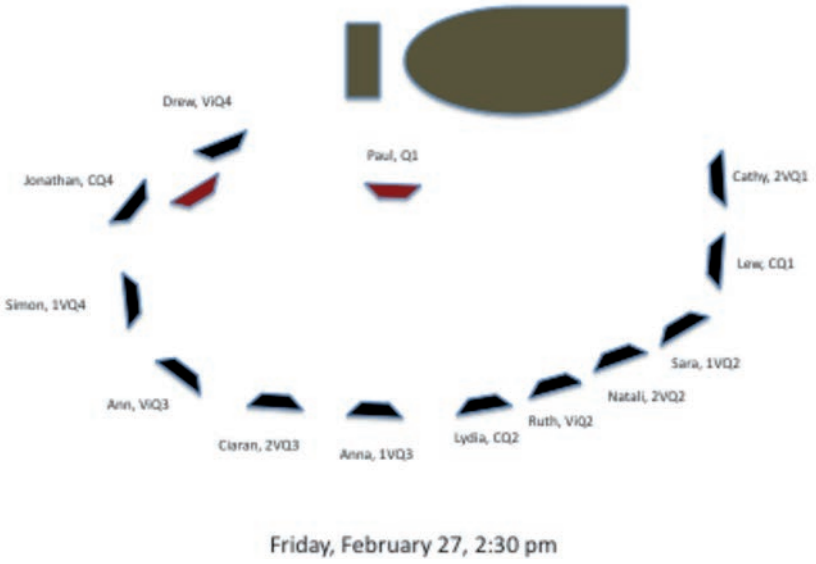


Figure 3.A: Seating configuration, Paul's barn, Day 1[29]

[29] They accommodate a grand piano in the room (indicated on the diagram). The red music stands indicate those working with the full, four-quartet score, rather than their own individual quartet parts.

After 3:00pm, Paul, still weak from his illness, goes inside to rest. In his absence, the group attempts to work without a conductor, not without first wondering how they will be able to play in time with one another. They consider then discount the option of using a metronome to replace Paul. The two remaining present members of the Medici Quartet, second violinist Cathy and cellist Tony, attempt to lead, but the group resists. Others begin to test the water, offering input, voicing opinions and suggestions on how to proceed. At 4:30pm, Paul rejoins the group, but not as a conductor; he picks up his violin to play. The unspoken proposal Paul makes with this action could be understood as follows: we will now try to organize ourselves without a dominant leader. Realizing this, the eyes that were once on him begin to search out clues from other members of the group as well. The group sorts out which quartets at which moments need to give the others clear leads, as dictated by the needs of the score. These leads, as the musicians in Q4 tell me later, begin to present an order amidst the chaos of 16 voices, provided the musicians attend to them. Still, many express difficulty hearing what they need to hear in order to play in time with the other quartets, even as they are in this optimal configuration, seated in a close circle in one room. What will it be like when they are stretched further apart, at Winchester Cathedral for instance, they wonder.

On the second day, Paul brings a metronome to rehearsal and clips it to his music stand. He tells the group that, ideally, they would have set up rehearsal so that one quartet was in each of the two lofts in the barn, and two on the ground floor, to simulate the performance configuration, but he determines they are not ready for that yet. They still need the physical proximity of a circle to learn the piece and one another. A discussion of timing and how they will take cues when they can't see one another in the performance space emerges and is left unresolved when Paul cuts it off, saying they can't know what they will need until they are in the space on the day of each performance, and they will need to adapt on the fly. The metronome for now provides the support needed for them to at least practice the music. But as a learning tool, meant only for rehearsals, it presents a temporary guide, leaving the quartets to wonder what they will ultimately "latch on to"—a lingering question Paul does not attempt to resolve at this point.

Reflecting on those two days of rehearsal, in interviews after the fact, several of the musicians report that, as a composition, *Towards Silence* is not that much harder to play than a "regular" quartet piece; it involves the same kind of work. Often the quartets play as

units, almost as if each quartet is one voice in a larger quartet. The challenge is being able to hear one another. The first violin of Q4 tells me that what happened in rehearsals was "what you kind of expect if you put four lots of people who don't know each others' groups into the same room and ask them to interact together. Which is slightly chaotic, slightly disorganized, but fundamentally not ineffective." Most agree that they achieved their primary objectives for these rehearsals: to get to know the other players, to get a concept of what the piece is, to find and feel the "pulse" of the piece collectively, and to at least begin to determine what kind of leadership or other support will be needed to pull this off.

While they express little concern over the fact as pre-rehearsals wrap up, the musicians remain uncertain as to whether or not they will be able to achieve Tavener's vision. In conversation with Paul in his home on the evening of the second day, he expresses general satisfaction with the progress they have made, assessing that they had "got past the most uncomfortable, incoherent stage" typical, in his experience, to the development of a new work. When I ask Paul how he expects to translate the group's work, which in rehearsals so far has been configured in a circle, to the yet untried configurations of the performance venues, he shares his uncertainty as to whether or not they will be able to achieve the spatial distribution Tavener calls for:

> The one thing I do know is that until we actually know the score well enough to be able to play it with *complete* confidence sitting in a circle, there is no way we can attenuate the connections or the lines of sight – because it's not just visual, that's the trouble, you actually have to hear it. At the moment, I don't see any way that we can attenuate this shape. I think the most we might be able to achieve if we had a big enough space, a suitable space, is to sit in a cross form, with the four quartets facing inwards to each other…Sort of four clusters, like four nubs. But that's not what [Tavener]'s asked for. I'm going to take a lot of convincing that anything beyond that is possible.

Paul explains that this uncertainty makes the US premiere particularly tricky, because they have already committed to performing across four levels of a spiral staircase, and he still doesn't know if that will be possible. But Ivo, Medici's viola player who is now based in the US, had traveled to the Rubin Museum earlier that month and agreed to the producer's proposed configuration. "I hope Ivo wasn't over-eager to please, but he said to [the producer] we can do it. So they've sold tickets now on the basis that we can do it in that

shape", says Paul. Then he informs me of the back-up plan: "It may be that the only way that we can perform it in that space, in that shape, is for everyone to have headphones, and we play it with a click-track. Which is like, effectively like we'd be playing to a metronome, but only *we* would be hearing the metronome." Though he groans as he says it, Paul confesses he believes 99% of the audience won't know the difference: "Most people have no idea that there's an aesthetic or difference in sensibility between listening and playing to something that's clicking. But to me, it's like a negation of everything I believe in."

Nonetheless, Paul ends on an upbeat, putting his trust in the composer and suggesting that it may work in a way that he can't anticipate until they try it. This is the usual way of beginning to rehearse any new work, he explains: "things that were simply impossible when first learning a piece become easy when you know it." The only way to get through impossible to easy, in his experience, is to be "in it", to play the music as a group and learn the signals, the shape, and the needs of that particular composition. Until they do that, he considers it unproductive to doubt Tavener's ability to create a composition that can be effectively performed. Their task is to believe it can be done and find the best way to do it.

Rehearsals and a world premiere, April 2009

Paul, much to his disappointment, isn't well enough to travel to New York in April to participate in the world premiere. The Medici Quartet enlists a friend of Cathy's, Fenella Barton, to play second violin to Cathy's first. I'm at the Rubin Museum when the provisionally constituted Medici Quartet arrives Sunday evening, ahead of the younger American-based quartets who are coming Monday. After a period of enthusiastic introductions, producer Tim McHenry takes us all on a quick tour of the "Spiral," the centerpiece of the Museum's architecture and the site of Thursday's performance. The staircase (See **Image 3.6**) scales six floors, pausing at each in a sunburst-shaped platform to release travelers into the open exhibition rooms, and resolves under a massive skylight.

Image 3.6. The Spiral Staircase, Rubin Museum of Art[30]

Tim informs Medici that the aim of performing across different levels of the Spiral is to exploit the sound funnel the staircase creates, and to experiment with transmitting vertical sound through the audience, who will be seated on each floor, facing the exhibitions, in the kind of meditative exercise for which Tavener asks. The Tibetan Singing Bowl, which is also in the score, will be played by a musician seated on the very top floor. Despite contrary suggestions offered by Tony, Tim insists that the four quartets be spread out over four floors, this experiment being a primary motivation for the commission. Ivo takes the lead in suggesting the layout: Medici (Q1) will be positioned on the fifth floor landing, Q2 on the fourth, Q3 on the third, and Q4 on the second.

Tim then invites the Medici musicians into the Museum café for tea and a chat, during which they troubleshoot problems they might have in achieving an integrated performance across four floors. Slight time delay due to the distance sound must travel from Q1 to Q4 is considered (disrupting aural communication), as well as the difficulty they will have in seeing more than one or two other quartets at any given time (restricting visual

[30] Photo by Peter Aaron/Esto

communication). Several possible solutions are proposed for solving the problem, and all discarded as insufficiently precise, save one: Paul has recorded a click-track of the entire score with which to cue the first violinists via the use of wireless ear-pieces. However, Cathy reminds the others that, according to the score, two quartets always play in relationship to one another, which might in itself provide enough aid for coordination. Perhaps, and ideally they agree, they will be able to solve the divide without any kind of artificial support. Maybe "ears will simply have to listen harder", Tim suggests.

Medici begins rehearsal in the Museum Theatre, seated in usual proximity; the maximum distance between two members is 8.5 feet. But their curiosity over how this will work in the performance configuration gets the best of them, and the musicians soon carry their instruments out into the Spiral. Tony and Fenella perch on the fifth floor landing where Medici will sit in performance. Cathy takes the role of Q2 on the fourth floor landing opposite the Spiral from Medici, while Ivo travels down to the third floor, the site for Q3, from which vantage he can see Cathy, but not Tony and Fenella as he is directly underneath them. "Can Tony see down?" Ivo asks. They seem concerned only to prove that they can see and hear one another to some degree, and they determine trade-offs, like: only the first violin needs a view of the opposite quartet, not the second violin.

The four experiment with playing parts, each representing a quartet in the full score. Cathy exaggerates the musical beats physically while she plays, to try one method of communicating across space, and is teased for it. Ivo and Cathy figure out how to coordinate communication with Q4 for a crucial passage in which Q1 and Q4 play together—Cathy decides she can stand up from time to time at her position on the fifth floor, for when she stands at the landing rail, she discovers, she can see Ivo, who is now acting as first violin of Q4 on the second floor, and give him visual cues. While they aren't yet sure what they will or will not be able to hear across such a distance once all 16 musicians are playing (it is 36.2 diagonal feet from the fifth floor landing to the second floor landing, rail to rail), they seem encouraged by the possibilities they're inventing. Ivo states, "I'm feeling more positive now." They report to Tim their belief that the four-floor split is possible and their resolve that they won't need the click-track after all. "It won't be music" with a metronome "banging away" in their ears, Cathy asserts.

However, the click-track comes up again the next morning, as the Medici Quartet discuss ways to enable communication between groups. They begin with the organic

approaches: each first violin will need to act as a conductor and gesture cues to the other quartets; Q2 will be able to see Medici's bow changes even if they can't hear them; Q2 can beat out a rhythm to cue Q1 and Q3; Q3 will have to coordinate with Q2 and Q4; the whole activity will be like a relay race, passing the baton. However, as they talk through these options they acknowledge that it becomes hard to be still, as the music requires, when communication objectives oblige them to be hyperactive with their bows. Tony brings up the use of the click-track solution again, *just for a section of the music*. But his colleagues remain convinced that the click-track will isolate each quartet from the other and make it more difficult to hear. This is seen as detrimental to their art. Listening, says Fenella, is the way musicians make music with one another. Cathy argues that they have to "give it a go" without the click track, but also agrees to remain open to giving the click-track a try.

The American-based string quartets arrive Monday evening, and the collective work begins. Unlike their British counterparts who were lacking a few musicians, these quartets rehearse with the benefit of full attendance. They are energetic and on task, bubbling with intra- and inter-quartet conversation. They sound better prepared than their predecessors, an observation Cathy supports later with her own assessment. They begin their work as the UK team had in February, seated in the configuration that allows the closest proximity and maximum lines of sight—a circle—at the base of the Spiral. (See **Figure 3.B**.) They jump right into the tasks of sorting out leads, synchronization, and interpretation collectively. Questions are typically directed at discerning whom a particular musician or quartet should be listening to at a moment in the score, in order to play in time together. Q2 and Q4 alone play a passage together to sync-up; the chance to hear them play that passage turns out to be helpful to Q3. Some of their interpretive negotiation relates to volume adjustment, so they can hear one another, and sorting out difference in textures, so they aren't all playing at the same level. Other of the work is about finding a mutual understanding of Tavener's written directions, and marking the breaths to take together between sections. In the midst of this work, Cathy acknowledges appreciatively that the group is working well together by collectively leading: "I feel a sense of leading and not leading, all of us." No metronome, click-track or conductor as been proposed.

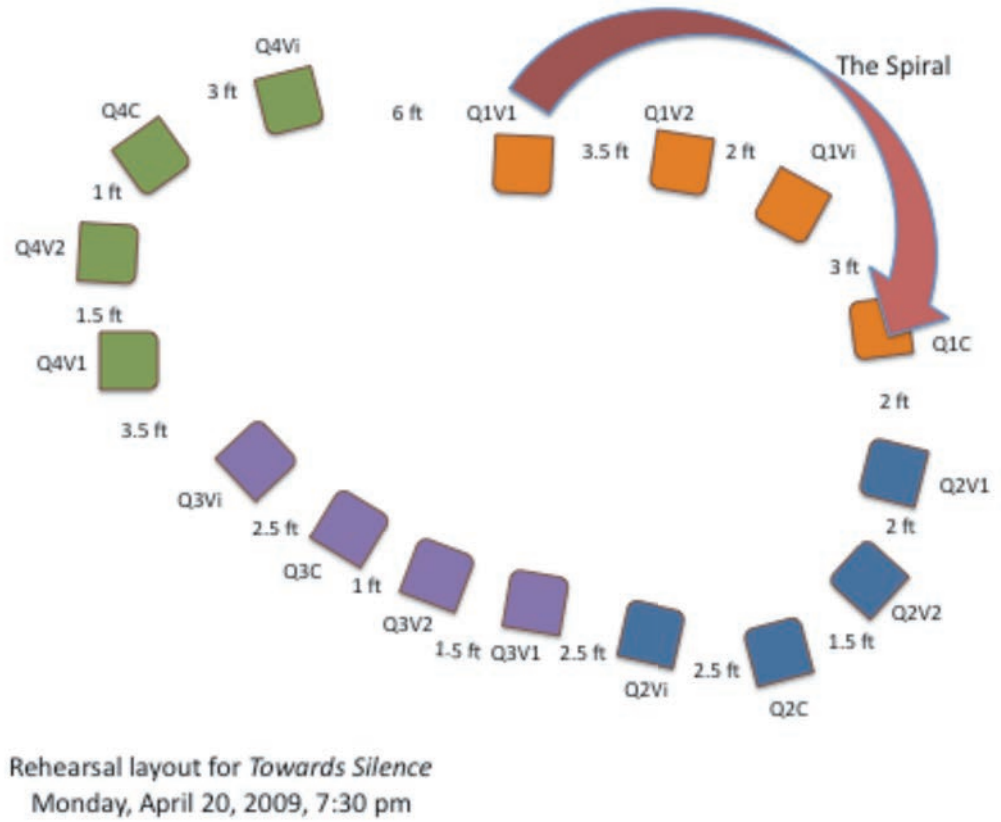


Figure 3.B: Rehearsal seating configuration, Rubin Museum

The American quartets soon begin to reiterate, with some variation, the concerns about spatial constraints that Medici had exercised prior to their arrival: will they be able to hear one another once they are seated in the Spiral? Since they are used to seeing one another while they work, what will happen when they can't? The second violin of Q4 reports experimenting in this configuration with not looking at Q2 during a passage. Deprived of visual leads, she discovers she is no longer able to stay in time with them and is alarmed. Despite these concerns, the quartets continue to use their time together in a circle to explore textures, taking away vibrato in one passage, playing another as if "petrified". They enjoy good feelings, good attention and productive work.

Later that evening, the quartets migrate upwards to the staircase landings in the Spiral. Here they try all kinds of acrobatics in the effort to coordinate their playing without artificial aid. For instance: Q3 is seated on the third floor directly underneath Q1 on the fifth, and, as Medici had discovered in their earlier experiments, the two quartets cannot see one

another, but both can see Q2 on the fourth floor landing opposite. So the first violin of Q2 takes on the role of communicating between Q1 and Q3 by exaggerating his bowing, and even conducting at moments with broad gestures. Q3 then relays beats and downbeats to Q4 on the second floor, who can see no one but Q3 and hear little, their eyes and ears craning upwards. In order to relay, Q3 delegates tasks amongst themselves: the cellist will express the pulse physically, with an animated bounce, while the first violinist will embody the downbeat, in a more subtle but perceptible way.

These efforts continue the following day, short Q3, as the quartets work in the Spiral. The click-track has been proposed as an option this morning, but the musicians consider it "Plan B". Q4, in the absence of Q3, splits its members across the second and third floor landings to facilitate communication with Q2 on the fourth floor. While this serves to make coordination easier for them to start with, Q4 struggles with the perceived sound delay and inability to hear what the first two quartets are doing above. The delay makes it difficult for them to diagnose problems, such as who is out of time, and adjust. Their cellist lets loose a sudden cry: "We're in jail down here!" Lina, their second violin, climbs the stairs to Q2's landing and pleads with the others to at least try the click-track.

Her plea meets with vigorous debate, as the musicians gather on the fourth floor landing, instruments in hand. Q2's first violin J argues against the click-track. His concern is that the click-track, being a fixed, pre-recorded track, can't accommodate and adjust for the natural reverberation of sound through this space, as the musicians can. If not born of listening to the space and one another, J argues, it won't be "music" they perform. Lina counters: "If it's not together, it can't be musical anyhow." She suggests the best approach is to use the click to play precisely in time together, so that they can focus on developing the layers of sound the audience will perceive.

Finally, they agree to at least try the click-track, and technicians visit each floor delivering the earpiece to each first violin. The use of the click-track brings a host of changes to the nature of rehearsal. First, every time the musicians stop mid-score, they have to wait for the technicians to re-cue the click-track before starting again at an agreed upon place. Second, they now work on playing in time with the click-track rather than with one another, and to do this the musicians in each quartet focus on their "leader", the first violin, to communicate the cues he or she is receiving through the earpiece, a new task for that leader. Almost all physicalized and visual communication between quartets has ceased.

Gestures subside. Cue relay is a thing of the past. Folding chairs spring open, and musicians sit, circling into their own groups, where once they stood at the edges of the landings peering up and down across the divide.

Once they've tried the click-track, some revisions of opinion occur: Lina, its strongest advocate, admits that it's hard to "play music" with a click in your ear, and expresses discomfort with the "military" feel it causes. The musicians feel constrained by the click in terms of the range of character they can explore within its rigid structure. J remains dissatisfied with this solution. He argues that the click-track takes away the essential struggle of four quartets coming together across distance, and the dynamics of this struggle experienced in both the qualities of the process and the music made. He considers this struggle essential to realizing Tavener's vision and for creating that special quality of ensemble. He claims the music sounds different as a result of the change.

However, the advantages are also weighed, both in terms of technical proficiency and aesthetics. The musicians discover they can play softly now, as the score is written, rather than play loudly to be heard and in ways that distort the musical aesthetic. Given that they are now playing more softly with less overt physicality, and given that they are now playing more precisely in time together via the click-track, they can actually *hear* one another better—a promising condition. The result, heard by those musicians who leave their seats and wander the staircase to listen as the others play, is more "musical". It sounds better. Ivo gives the group a new way to think about the click-track, suggesting that, as he hears it, "Tavener's music is an absolute inner pulse with stillness around it", and the click actually supports the aesthetics of the piece by being that absolute pulse.

Tony builds on this possibility, making a proposal to the group: "As we get familiar with [the click] we can expand it." By which he means, as they master the click, they can begin to play less rigidly *with* it, and more *in relation to* it, creatively, as they would work normally with a metronome in rehearsals. Eventually, they will be able to reduce the amount of effort and attention required to play in time with one another via the click-track. It will help them sustain coordination, but will cease to dominate, and a more dialogic relationality can emerge. Lina suggests that while "temporality is taken away" from them, they can find other ways to create changes in character.

After these discussions and playing through the full piece with the click-track, the group opinion coalesces around the decision to use it. Ivo declares the music better with the click. The music now wafts through the sound funnel. "It sounds more clear", says Cathy. A more "ethereal" effect can be pursued, as Tavener intended. The click also alleviates difficulty: musicians no longer have to strain to hear or be heard. Q4 is delighted with the overall effect. Q2 concedes, telling me in a later interview that they do so because they believe the decision ultimately rests with the Medici Quartet, since this is "their project".

Reflecting Friday morning, after the Thursday evening premiere, Fenella tells me that, in her opinion, they became more playful once they added the click-track. Being able to hear one another gave them freedom to listen, and tightness of coordination afforded play. She declares that "the whole thing came together" in performance, and that she was persuaded for the first time that the composition works in different levels and can work in different configurations. Tony reported on audience feedback: "Everybody says it's beautiful to listen to." Several others involved in the performance offered their own evaluation by writing letters to Paul, which he posted to his blog. McHenry called the performance "phenomenal", declaring that the conception of the levels worked. Q4's violist said that despite the challenging configuration, "you could feel a genuine connection between all of the groups." Reviewer Matthew Gurewitsch reported: "Though divided into four movements and punctuated by chant-like calls from the singing bowl, the composition unfolded in one shining arc…Those who attend are in for a singular experience" (Gurewitsch 2009). An audience member described that experience as follows: "In the performance the distinction between sound and space sometimes seemed to dissolve, so perfectly did the music and the museum complement one another." Paul received, to my knowledge, one critique of the performance that he did not post to the blog because he "doesn't want John worried". While mostly favorable, the writer exposed the use of the click-track (which was meant to be imperceptible to the audience) and claimed the piece should have been composed for the Spiral configuration more precisely.

Performing in Multiple Venues, June-July 2009

Scheduled before the world premiere of *Towards Silence* in the US was perceived and blogged a success, the UK premiere at Winchester Cathedral in July arises next

on the agenda. Here, the musicians are promised the ultimate test of this exercise: to perform together at the extreme distance afforded by one of the most expansive cathedrals in Europe, completely out of range of one another's sight and, likely, hearing. Leading up to this performance, the UK quartets have two concerts in London, one for The Study Society at The Colet House, and one for Westminster Synagogue, which, being private concerts (even if sold out to audiences of 200), are considered by Paul to be rehearsals for the premiere. Following Winchester, a final performance will occur at St. Mary's Church as the opening to the Petworth Festival.

Rehearsals

To achieve performance of *Towards Silence* in four radically different spaces, and based on the perceived success of the US exercise, the UK quartets begin rehearsals *with* the click-track. No time is spent considering alternatives, though Cathy mourns the loss of the connections built by working first without the click: "It's like rushing straight for a cesarean section instead of trying natural birth first!" However, Ivo and Tony have returned from the US true believers in the click and proselytize to the others. Ivo tells the violist of Q2, that with the click "you have the rhythm, so it gives you more freedom. It feels horrible, but it's amazing." The musicians have spent the morning hours of the first day of rehearsals focused on the first act of these concerts, Vivaldi's *Four Seasons*, with a plan only to play through the second act, *Towards Silence,* once that afternoon. Tony explains: "I'm not worried about *Towards Silence*. We have the click-track." The US experiment appears to have solved the problem for this group.

Reconvening in Paul's barn, the four UK quartets organize themselves into a configuration that disrupts, as much as possible, their sight lines, so that they may begin to practice playing with limited visual communication. (See **Figure 3.C**.) They work first with the click-track played over the barn's sound system, for all to hear. By the second day of rehearsals, they use the wireless earpieces. As they rehearse,

Tony reports on interpretive decisions made by the quartets in the US. Ivo steps out of his seat to listen, and offers input. When Cathy says that the music doesn't sound as clear as in New York, Ivo supports her assessment, ascribing the change to the room they are in. Physically, they are "on top of one another" in this space. More distance between quartets is needed to hear the music properly. Ivo coaches the group to adjust dynamics to the space, feedback he will offer differently to suit each of the spaces they travel to. In the barn, dynamics need to be "on the lower edge".

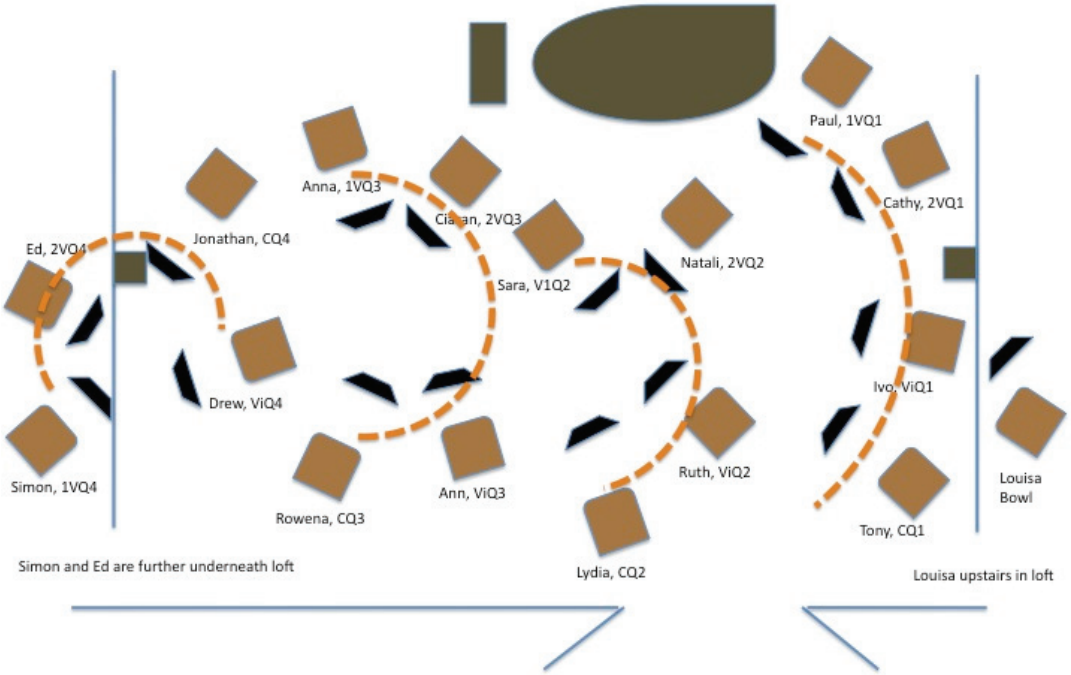


Figure 3.C: Rehearsal seating configuration, quartets nested, L to R: Q4, Q3, Q2, Q1. The Tibetan Singing Bowl player is positioned in the loft at the right.

The last hours of rehearsal focus primarily on "playing right with the click", including sorting out the leadership needed from each first violin responsible for communicating cues to colleagues. While the musicians make some preliminary choices regarding dynamics, these choices stay open to revision, as they anticipate that they will need to adjust balance to each performance space. Four days of rehearsals in the barn end in good spirits on the evening of July 3. The musicians plan to meet at The Colet House the

next day, early enough in advance of their evening performance to rehearse *The Four Seasons*, and then work *Towards Silence* in the performance hall one hour prior to opening the doors to the audience.

Private Concerts

The Colet House performance goes more or less smoothly, with the occasional technical glitch and musician error (a faulty earpiece, a dead battery, getting out of time with the click) from which the quartets quickly recover by checking in with whichever musician is seated closest or within sight. They perform in the configuration planned in advance by Tony and Artistic Director Jude James, who have called for the four raised platforms on which the quartets sit to be situated in each corner of the 70-foot long rectangular hall. The hall is filled to the brim on this hot evening, and 200 people meditate in unison (they train in meditation at The Study Society) to the 35-minute piece. Jude is so affected by the performance that she attends every following event. When I ask her about her experience at the final concert, she tells me she "can't get enough of it", and that as a personal spiritual experience, it is "transforming" her.

The Westminster Synagogue performance is also experienced as a success, although (or because) nothing proceeds as planned. Tony and Events Coordinator Renee Salamon agreed in advance that all four quartets would be seated together on the ground floor, with the sound wafting up an open staircase to the audience seated on the first floor above. However, when the musicians gather at 5:00 PM to try this out, they discover that the space at the bottom of the staircase is too cramped; they are seated "on top of" one another, as they had been in the barn. There is a "too close" problem as well as "too far". The musicians rebel against the configuration, claiming the music will sound too muddled and won't be audible enough to the audience on the first floor. After some debate whether to play upstairs and/or downstairs, they decide on a more radical option: to play in and around the staircase itself. (See **Figure 3.D**.) While there are still difficulties with this configuration—Q2's violist becomes alarmed when she realizes she won't be able to depend on Q4 for two visual cues; Renee is alarmed by the change and requires problem solving related to fire codes—the quartets proceed with this arrangement, minutes away from the audience's arrival. As they finish rehearsing, Paul, Ivo and Tony agree it sounds "ravishing" on the stairs. Paul praises it by comparison: "Didn't get that sound in Colet!"

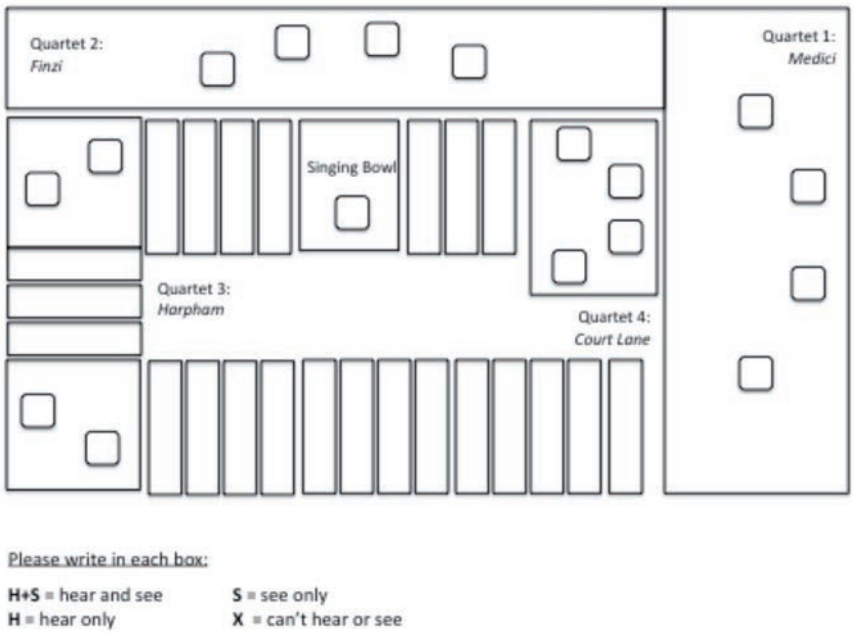


Figure 3.D: Seating configuration at Westminster Synagogue, in the staircase

Winchester Cathedral Premiere

The Winchester Cathedral event introduces an altogether different and unanticipated difficulty: since 8:00 this morning (it is 2:00 PM now) two crews—a recording crew from the BBC and a television crew hired privately with generous funding from an unnamed patron—have been setting up extensive video camera, audio recording, lighting and electrical equipment around what they have defined as a central "onstage" space. Doing so, they indisputably dictate precisely where the performers are to sit, within a rather tight space in front of the Choir. Malcolm Creese, who is not a quartet musician, but the bass player for the Vivaldi *Seasons* and the producer of the next performance at the Petworth Festival, expresses his horror at this layout to quartet musicians as they arrive. All were led to believe that *the whole point* of playing at Winchester was to reach a climax in the distributed design, to push the boundaries of this unique endeavor to its very spatial limits. Malcolm is organizing an uprising.

Malcolm and the mobilized quartet musicians exercise their arguments, along the following lines:

> *Didn't we all begin this peculiar project with the vision of Winchester as the pièce de résistance of distributed quartet playing? Didn't Paul from day one take pains to describe, in detail, his vision for how* Towards Silence *will be impossibly performed in the four extremities of the cross-shaped Cathedral? Wasn't a performance at Winchester in fact sought after precisely because the Cathedral boasts the longest Nave and overall length of any Gothic cathedral in all of Europe?! What was the point of all that hassle with technology? We struggled to integrate the damn click-track so that we could become capable of playing in any space, and especially this one! Winchester is finally the space in which we can achieve Tavener's vision—no stairs to contend with, no wide-open and well-lit hall. But if we proceed with this publicity-induced absurdity, we'll all be seated together, practically on top of one another! Tavener says "this is not music that should be heard as concert music [as in under hot lights, on a stage!], but rather meditated on." We'll all be mercilessly exposed to the audience under television lights, which is nothing at all like being enshrouded in the secret corners of darkness about a Cathedral. We will be watched instead of listened to.*
>
> *And Tavener himself is coming, today no less, and might die any moment! Shouldn't we be giving him the performance he asked for? It's disaster!*

When Tony arrives, we learn that this layout was in fact prearranged by Tony and Paul, in negotiation with the BBC and television crew. When the opportunity for filming came up (that is, funding), the trade-off was made: to sacrifice the aesthetic experiment in favor of media benefits. Unfortunately, no one had bothered to tell the rest of the musicians about the change in plan, and priority. When Paul arrives with his familial entourage, he confirms this decision and layout. He refuses to listen to any dispute on the matter, and settles himself in his first violinist's chair to survey the crew work in progress, displaying his physical weariness as barrier to any further disputation. Malcolm retreats.

By dinner break, Q4's disappointment in the Winchester configuration (See **Image 3.7**) seems to have flourished into full-blown disillusionment with the project. Now that they are seated "practically in a circle" at Winchester, the click "feels pointless". Back stage, Q4's violist, who is usually the most animated of the group, slumps in his chair. He calls his work today "a job", by which he means to differentiate it from projects that involve "passion and love". He adds: "I feel like this is still just a professional product, at the moment."

Image 3.7. The quartets rehearse *Towards Silence* at Winchester Cathedral

By Q2's post-performance assessment, the Winchester experience suffered in comparison to the Synagogue, which was for them more pleasurable and more integrated. "We were almost audience members ourselves [at the Synagogue]", second violinist Natalie says, "I loved the fact that it was so informal, that it seemed really friendly." Whereas at Winchester, seated "higher up on an alter", they lacked the interaction with the audience, and Q2's cellist felt for the first time as if they were separate groups rather than one whole ensemble working together. "Tonight, to be honest", continues Natalie, "we could have been sitting in a string orchestra situation playing individual parts. Whereas [at the Synagogue], it was the effect of having four groups, that kind of surround-sound…and I thought that was what Tavener was wanting with it." This quartet expressed their perception that, given the

set performance configuration at Winchester, they were not allowed to realize Tavener's vision, neither in terms of their use of the space nor by becoming an integrated ensemble.

Ivo, on the other hand, expresses a different experience. He describes the sound at the Synagogue as being "too loud almost", so that "you couldn't tell the detail quite so clearly". He enjoys the effect of being in a large space, which he says allows him to hear better what's going on, and thinks the audience at Winchester had a more complete experience of the whole piece. At least one reviewer, Andrew Clements, criticized the layout as failing to honor Tavener's directions, and blamed the cameras for taking "the edge from any sense of spirituality" (Clements 2009). Tavener himself is thankful, but remarkably silent.

CONCLUSION

In this chapter, I provided the contextual and background material I felt necessary to invite you, the reader, into the empirical setting for this study, in which I have investigated my research question, *How do work groups ensemble?,* as I set up in Chapters 1 and 2. I gave a baseline account of the *Towards Silence* project, as it unfolded, providing a narrative context for the analyses and interpretations to come in this thesis. We will continue to hang out with the informants introduced in this chapter, as I generate multiple interpretations of their actions and experiences in later parts of this thesis. For now, I turn your attention to the next chapter, *Method and Methodology,* in which I describe what I did to generate this data and my interpretations, and why I did it that way.

Chapter 4. METHOD AND METHODOLOGY

It's 3:30pm on the afternoon of the first public UK performance of "Towards Silence", Saturday, July 4, 2009. The quartet musicians minus Paul are tucked into the resonant front room of the Colet House rehearsing the evening's first act, Vivaldi's "Four Seasons."[31] *Cathy, as soloist for the Autumn Season, is in the lead. I've spent the first hour simply watching them rehearse, no note taking, just to see how this changes me as viewer, them as viewed.*

No sooner do I pick up my notepad and sit to write, than Jonathan leans toward me from his cellist's seat to offer an observation. He begins by asking if I've made any observations myself. "Lots," I whisper. I might say more, but they are in the midst of rehearsing, and I dare not carry on. Besides, I know he intended the question as a lead-in to his own comment, which I am eager to hear. It's not often the musicians initiate exchanges with me mid-work.

Jonathan offers the nut he's bursting to share in three clipped, whispered words: "Back. Seat. Driver." He delivers a pointed look in the direction of the other cellists, seated together in an orchestral configuration, cuing me to watch for the phenomenon, and settles back into his chair to play. I scan the musicians, searching for the culprit. This is not something I had previously perceived.

Anna takes the lead now, as violin soloist for the Winter Season. After playing through the season once, she asks about her own performance: "How was that?" Her eyes settle on Jonathan, who responds: "Perfect."

While Tony offers further feedback to Anna, Jonathan comes over to me to vent. This is what he meant by "back seat driving": Tony giving unsolicited feedback to Anna. He wants me to see it too.

I ask, "Isn't that the idea, that you give one another feedback?"

He says, "I don't know, but I prefer to let the soloist decide."

"Didn't you just give Anna feedback?"

[31] They are joined by one guest musician, bassist Malcolm Creese.

"Because she asked me directly. I don't give feedback to the soloist unless directly asked."[32]

The next afternoon at Westminster Synagogue, before rehearsals begin, I catch a rare moment for an extended (15 minute) chat with Jonathan to follow up on this. I pursue the issue of whether this group's way of working isn't intended to be open to input and feedback from all members on a more or less equal basis. He himself had offered feedback intended for the group yesterday, albeit by first speaking to Tony. Tony had said it was a good idea to share, and was the one to voice Jonathan's idea to the group.

Jonathan elaborates on his preferences. With limited time to rehearse (a significant qualifier in this case), he thinks it's best to have a dominant leader, and he needs to know that this leader has mastered the piece independently before group rehearsals begin. He refers to his experience working with a favorite teacher as example: "She is the best player in the room. Do what she says, and it's right." At the same time, in rehearsal at the Colet House yesterday he felt a shared and open flow with Anna, who asked him directly for input (which is why he ventured some), and he was excited by the chance to give it and to have that kind of exchange. "Those [kind of exchanges] take time," he says, referring to the time it takes to build a relationship with a colleague that can support such exchange of feedback.

I suggest to Jonathan that, as I understand him so far, he's conceiving a kind of spectrum, imagining on the left hand the dominant leader model (to use his words), and on the right an "ensemble" able to work in that kind of open flow of exchange possible over time. I illustrate the range by holding my hands apart horizontally. He says he prefers to be towards the dominant leader end, maybe 1/3 distance from that end—which he marks in the air, between my hands—but capable of ensembling. I take his reaction to mean my spectrum of opposite poles—inspired by theory and prior research, including ideas expressed by his colleagues on this project—makes sense to him, but that he sees the potential for groups to move between different modes of

[32] There's an important task distinction to make here: Vivaldi's *Four Seasons* requires one violinist to be "soloist", creating a hierarchy in the group by distinguishing a leader. Whereas *Towards Silence*, written for quartets, has no "soloists" or moments of solo playing, so this issue of feedback to the soloist would not arise.

interacting, depending on their work conditions—such as how much time they have together to build relationships that support open exchanges of feedback—and on the level of participants' expertise compared to the master teacher or leader.

In this chapter, I present my research methods and methodology, relating what I did to generate and analyze data and explaining why I did it that way. Empirical, primarily qualitative, data was generated and analyzed iteratively over the course of the life of the performing arts project I studied (Eisenhardt 1989). As the project involved three distinct phases, so did my fieldwork. Each interruption in fieldwork provided opportunity for me to revisit my research problem and study design, and to consider new directions in light of findings. Each phase of the project provided me opportunity to focus my observation and investigation differently, inspired by what was emerging as important to participants and aimed at responding to variations in their local experiences. Experiments in methods for generating data were tried; in the case of the questionnaires described later in this chapter, some efforts that generated one kind of data (quantitative) in one phase, ended up generating other kind of data in another phase. I offer the story above as one example of how project participants and I collaborated on data generation, and how theory entered into conversations with them, rooted in observation of their work, to test emerging insights into ensemble and how they conceive of and achieve it (Deetz 1996:196; Eisenhardt 1989). Analysis that proceeded after the end of the project life also took an iterative form: experiments with different ways of interpreting and writing about the work process I had observed were made, each time presenting a new way of understanding how the participants went about their work in stretched conditions.

As I describe what I did to generate and analyze data, I also describe why I studied the way that I did, including the methodological considerations and frameworks that I used to guide my research design and analysis, as well as reflections on the influence prior experience played. I situate this study as nascent, as its aim is to advance our understanding of a special but poorly understood collaborative phenomenon, ensemble (Edmondson and McManus 2007: 1171). Therefore my primary interest is in concept formation, which I pursue by engaging theory and local insight in a dialogue, and that seeks some order for building a shared understanding (Deetz 1996: 196-197). The ways in which I had, with colleagues, previously studied the work of artists and creative groups in the study's multi-

case parent project, *Artful Making,* informed my initial approach to generating and analyzing data, and positioned this study on a consensus-building trajectory with both normative and interpretive interests (Deetz 1996). I began with the aim to elicit variables, suggest causality, and generate hypotheses to later test, on a case-by-case basis, in order to build arguments for generalizability. However, as my study and my understanding of the study evolved, I realized that multiple approaches, including an interpretive approach, were more appropriately suited to my emerging research question, my methods for generating data, and my efforts to articulate arguments. While I continued on a consensus-building trajectory, in later phases of analysis "the 'mirror' [gave] way to the 'lens'" and I opened the study up to an alternative reading of the data in order to expose the "fuller potential and variety" inherent in the phenomenon (Deetz 1996:197). I did this also in the hopes that opportunity for transferability increases.

In Chapter 1 of this thesis, I presented the research problem as it emerged, and the question at the heart of the inquiry: *How do work groups ensemble?*[33] I elaborated on the parts of this question to make my research intention clear: I am looking for multiple ways of describing and understanding the doing involved in the processes by which work groups call the quality of ensemble into being. I also introduced the empirical case and briefly addressed the study design and methods. In this chapter, I offer a fuller discussion of how I

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[33] While findings now allow me to frame my investigation as study of ensemble, I could not be sure prior to fieldwork that ensemble would matter to those groups I studied in the context of stretched conditions, just as I could not be sure of the precise conditions in which they would be performing. The research question, therefore, began life in a form that remained open to the possibility that ensemble might not be a critical component to participants' work in stretched conditions:

> How do work groups accustomed to ensembling in "natural" conditions, organize to pull off a new form of work task in stretched conditions?

Thus, as fieldwork began, I set out to understand the work methods used in these new conditions, to describe what the groups did, and to look especially at moments when they hit a snag, to learn what got in their way and how they found a way forward. I planned to look to see if and how their work methods enabled the experience of ensemble to occur in stretched conditions, and whether or not that mattered to them. Overall, I would compare what the groups did given increased constraints to what we might expect them to do based on our current understanding of ensemble collaboration, in the worst case falling short of describing ensemble but able to describe a form of collaborative creativity that was one step removed in an imagined hierarchy, thereby still contributing to our understanding of specialized forms. At the same time, I would be able to discuss, presumably, why and how stretched conditions "broke" ensemble. When I found that ensemble did in fact matter to participants—the project itself was framed as a "problem of ensemble" by project leader Paul Robertson in an early interview—I felt invited to consider ensemble more explicitly in my investigation.

designed the study in stages to address the research problem, providing an overview of the methods I used. I then discuss the methodological arguments for and implications of this design before proceeding with a description of the methods for data generation and analysis in detail. I reflect, as relevant, on how my prior training and professional experience in the performing arts influenced not only my initial interest in studying ensemble, but also how I observed and understood the work of the performing artists I studied and plotted findings. Finally, I provide my argument for verification and conclude by addressing the limits of the choices I made.

STUDY DESIGN

The empirical setting in which I investigate my research problem presented itself with fortuitous synchronicity. In fact, I could formulate my investigation of ensemble as I did because the *Towards Silence* project event made it possible. Having previously observed and investigated the work of Paul Robertson and the Medici String Quartet (Austin and O'Donnell 2007), including conducting a 4-hour in depth interview with Robertson in his home (O'Donnell 2006), I had valuable background knowledge and access to informants. In 2008, Robertson contacted my supervisor to relate news of the upcoming project, *Towards Silence,* the start of which coincided with the start of my PhD study in February 2009. Already interested in better understanding the phenomenon of ensemble, I jumped at the chance to study string quartets because they are one example of a group that ensembles. Here were a set of quartet musicians, expert at ensembling, who were about to embark on an experiment to create ensemble in stretched conditions involving increased group membership, spatial distance and variable distribution. Neither the musicians nor the composer yet knew if it would be possible. The project's experiment presented a golden opportunity to investigate the process of ensembling performed at its limits, and I was welcomed to join the project as a researcher.

The study, like the project, proceeded in stages. In order to investigate and understand how string quartets address the difficulty of ensembling in stretched conditions, we first need to understand more about ensemble itself: what it is, how it naturally occurs,

and in what conditions.[34] I report these findings to the reader first. However, as the empirical project started three weeks after my research period began, I leapt into fieldwork, and investigations of ensembling in natural and stretched conditions proceeded in parallel. Synthesis of current theory followed data generation, and proceeded iteratively along with writing, at times causing significant shifts in the study design, as much theory related to ensemble and ensembling (as the reader can see by citations) emerged in the final months of the study, altering the nature of my contribution and ultimately helping me to cover territory more efficiently.[35] At the same time, many of the theoretical concepts related to ensemble being familiar to me from my prior experience and involvement in a team of researchers developing much of this new theory, I was able to carry preliminary concepts into the field to consider their relevance, to look for examples of them, to see how participants "exceeded" these concepts (Deetz 1996: 196), and to open up to new insights that might emerge from this local investigation, expanding and adding to these concepts (Deetz 1996: 195).

Stage One

Having acknowledged the stages of the study proceeded in parallel, I organize the following description by stage for the sake of explaining the underlying conceptual structure, beginning with stage one. To understand how work groups ensemble in natural conditions, I investigated theory (Austin and Devin 2003, Sawyer 2003, 2007, Austin and Hjorth 2012, O'Donnell and Devin 2012) and documented descriptions of the emergence of ensemble and processes of ensembling by performing artists or those studying them (i.e. Wilk, 1986, Blum 1986, Steinhardt 1998, Austin 2000, Moritz 2005, Austin and O'Donnell 2007, France 2010). I synthesize current understanding of ensemble and ensembling, along with related concepts and theories of high-performing groups and group creativity, in Chapter 2. From theoretical and empirical descriptions of the processes by which special groups ensemble, I elaborate the parts of ensembling—the qualities, methods, beliefs, conditions, and outcomes—insofar as they are known.

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[34] The formulation of this question of what is ensemble is adapted from Edmondson's development of the construct of psychological safety (1999).
[35] I thought, for instance, that I would have to do the bulk of the work to describe the methods of ensembling. In part, I did this, in collaboration with a colleague, in a separate publication (O'Donnell and Devin 2012). Theory also gained ground in that area from the work of Austin and Hjorth (2012).

From these parts, I derive a framework for ensembling, which theory seems to suggest. At this stage, I do this primarily as an analytic tool, to assess our current state of understanding and present it as an emerging frame for analysis[36]. By using this approach, I describe relationships proposed between an interdependent set of work methods that constitute a process of collective creativity, the conditions in which those practices usually occur, the progression of qualities those methods call into being, and the likely outcomes/indicators by which group members often recognize the emergence of ensemble. As one strategy for later case analysis, I seek to understand, using an iteration-based approach to interpreting the work process I observed, the evolving beliefs expressed by participants regarding the relationship between conditions, their behaviors, and the increased likelihood that ensemble and novelty/innovation emerges from the process (see Chapter 6). I compare findings to the theoretical framework in order to sharpen distinctions and suggest extensions to theory (Eisenhardt and Graebner 2007, Eisenhardt 1989, Yin 1994). I both propose this framework as one lens for understanding the emergence of ensemble, and later challenge it. While current knowledge offers us much understanding of ensemble and the special form of collaboration that calls it into being, the suggested framework highlights gaps in our understanding and questions regarding the relationships between conditions, methods and emergence. Being "suggested," it also invites objection and correction in the field, given exposure to new insights and concepts (Deetz 1996: 196).

Stage Two

To extend theory, and propose a construct of ensemble and a more complete framework of ensembling in natural conditions to guide investigation of its performance in stretched conditions, I investigated my research question, "How do work groups ensemble?" by looking at empirical material gathered during an initial phase of string quartet research conducted between 2005-2008, as part of the *Artful Making* project (Robertson 2005, O'Donnell 2006, Robertson 2007). I also generated new data by asking informants to describe prior experiences of ensemble and differences between how their work usually proceeds in natural conditions as compared to current project conditions. During fieldwork,

[36] Earlier iterations of this framework were inspired by Edmondson's model of team learning (1999). However, that diagram expressed a more linear relationship between the parts of ensembling than I intended to represent, so I revised the framework by adapting Austin and Hjorth's (2012) diagram of conversation and ensemble which expresses a process of emergence.

I listened for how participants invoked ensemble in their work and conversation with one another. I collected these descriptions, compared them to reports of similar high-performance experiences such as "jamming" (Lao 1996), "groove" (Berliner 1994), and "group flow" (Sawyer 2003), and organized descriptions into categories to explore the different facets of ensemble as a distinct experience. I synthesized these categories into a definition of ensemble, which I propose as a tentative theoretical construct (Edmondson 1999, Edmondson and McManus 2007), specific to the work of string quartets until its transferability can be explored in other contexts, for use in analysis of ensemble in stretched conditions. By understanding what these musicians mean by "ensemble," I am better able to discern their professional standards and expectations, how they conjure ensemble in virtual form, how that informs their actions and behaviors, and how they recognize its emergence.

I then elaborated on the suggested framework of ensembling and all its parts by exposing it to new evidence, to see how well it fit with informant descriptions of ensemble and of the methods they engage to realize it in natural conditions. The theoretical concepts being largely developed in empirical settings similar to the current research setting (that of performing arts ensembles; see Austin and Devin 2003, Austin and O'Donnell 2007, O'Donnell and Devin 2012), I generally expected more "fit" than disagreement. At the same time I was careful not to hold these concepts static, but to expose them to variation in the language or experience of participants, divergence from theoretical expectations, and new insights as well as to supporting examples (Deetz 1996: 195-196), the point of the study being to enrich our understanding of the phenomenon beyond current state. Based on this phase of the investigation, I offer rich descriptions of key methods and conditions of ensembling, presenting new insights regarding the parts of ensembling in the form of tables and an update to the framework of ensembling in Chapter 5.

Stage Three

In the third stage, I explored ensembling in stretched conditions. I investigated the conditions, features and processes involved in the *Towards Silence* experiment using direct observation, supplemented by informal and semi-structured interviews, questionnaires, and various strategies for capturing visual data including videotape, drawings and spatial

measurements (methods I describe in more detail later in this chapter). In my presentation of the case in Chapter 3, I focus on the "doing" part of my investigation, and on describing the stretched conditions of the work as they were introduced in stages. I report what the musicians did and how they did it, including what experiments they tried, what choices they made and some examples of how they evaluated their work together.

In a first round of analysis of this case, I present my interpretation of the work process as an iterative series of explorations, during which we learn, along with participants, what strategies for addressing constraints are more likely to increase the potential for ensembling to occur. I depict these efforts in a series of diagrams that, based on participants' evolving beliefs and my observation of their efforts, suggest relationships between constraints, responses to those constraints, behaviors and outcomes. This analysis elicits one understanding of the way in which the musicians ordered their work – one answer to the "how" in my research question. They anticipated that certain conditions or methods would lead to certain outcomes, and that perception informed their decisions. At times, those perceptions were challenged by what they actually discovered to be possible in the process of experimentation, leading to reversals of expectation. This analysis aims to propose relationships between conditions/constraints, beliefs, actions or behaviors, and outcomes, as demonstrated in this iterative process, and is one way of understanding the emergence of ensemble. I describe new methods for ensembling that emerged, and some variations in known methods. I also use this analysis to suggest extensions to the range of conditions in which ensembling appears to be possible, towards a later revision of the framework.

I then perform an alternative interpretation of case data, one in which I disrupt and destabilize my first iteration findings and have a new conversation on "how", in order to open up possibilities for more ideas about ensemble to emerge and to increase our understanding of the phenomenon (Deetz 1996: 198). I use other methods of ensembling described by theory, openness to uncertainty and reconceiving, as frames for understanding how these musicians worked on the problem of ensemble in stretched conditions. Just as the musicians might begin by working on a score by learning parts, setting leads, interpreting signs, playing the right notes in time, before they begin to "destroy" the music and generate variation and spontaneity, so do I. I play the music in time in my first analysis of the case, and then I play *in relation* to time, to generate new findings. This interpretation

exposes other movements in processes of ensembling, that work alongside the iterative process I suggested in the prior analysis, and invites new interpretations of how group beliefs evolve as well as better understanding of how new methods came into being.

As a third analytical strategy, I generate arguments by comparing subunits embedded within the larger case (Yin 1984) in order to understand what "makes" ensemble possible in stretched conditions and what "breaks" or disrupts processes of ensembling. I use the making and breaking evidence to expand our understanding of ensemble, ensembling, and the limits of conditions. As I do this, I also explore specific moments within the process that give insight into the relational nature of the work, including individual and quartet-level frustrations, conflicts, priorities and expectations. Overall, analysis of the primary case study contributes to our understanding of the processes by which ensemble emerges in stretched conditions, from multiple perspectives, and opens theory to new meanings and insights (Deetz 1996: 196). I wrap up the study by circling back to the theoretical framework of ensembling, to suggest extension and revision based on these multiple perspectives.

Anticipation of Stage Four

The study design I have just presented went through several iterations between 2008, when I submitted my application for doctoral study, and 2012 as I completed my dissertation. In its earliest incarnation, this investigation of ensemble was designed as a multi-case study, with the intent to implicate groups working at three frontiers of collaborative interaction: in-person/real-time communication (i.e. a co-located creative team such as a string quartet), virtual-interaction/real-time communication (i.e. a creative team working in an online virtual environment), and network-interaction/both synchronous and asynchronous communication (i.e. a globally distributed design team). In a later incarnation, my intention was to develop concepts in Stage Three via a primary case study that would be tested, at least preliminarily, for transferability in a second case study. That ambition remains. However, the *Towards Silence* project data proved rich enough in itself that I was encouraged by colleagues to focus on analysis of this case study as the primary contribution of this thesis.

The study design therefore anticipates a Stage Four, in which I will explore transferability of findings to groups working in different kinds of "stretched" conditions, such as those suggested by the original design. Meanwhile, this long-term agenda informed early data generation. For instance, in anticipation of preparing to investigate similar phenomena in other cases and conduct cross-case analysis, I made sure to collect and produce data specific to the physical conditions of the project events, including detailed documentation of spatial configurations, measurements of distances between group members, descriptions of the qualities of spatial environments, and notes on group culture and social interactions.

In the next section I explain why I chose this approach and set of operations, as opposed to others, and how my epistemological perspective shifted during the course of the study.

METHODOLOGY

To guide the design of this study, and achieve internal consistency between the research question, prior work, the study design and theoretical contribution, I used the framework provided by Edmondson and McManus (2007). This study naturally aligns itself as nascent, as I address a rare phenomenon and argue the need to deepen our understanding of the process by which people organize to perform this special form of collaborative work via "rich, detailed, and evocative data" (Ibid: 1162). Nascent studies call for observation, in-depth interviews, questionnaires and the like. They thrive on iterative data collection and analysis to build theory, including the construction and telling of coherent stories of experience, the description of emergent variables, and the particular exploration of unexpected findings (Ibid). In keeping with this framework, my contribution includes the offer of a new construct, ensemble, and a suggestive framework of ensembling that invites further investigation (Ibid: 1160). By using this design framework, commonly geared towards generating variables and proposing hypothesis for later testing and generalizability, I risk misrepresenting my intention as positivist (Deetz 1996). However I interpret this framework as inclusive of alternative analytic discourses, intended more to help the researcher identify their primary contribution and appropriate methods in relation to the "reasonably fixed context" of current theory (Ibid: 1158). Contribution can include

process theories; analysis can engage a variety of sensemaking processes and may proceed on a case-by-case basis.

Deetz' framework of discourses, which he offers as provisional guides rather than prescriptive paradigms (1996: 199), also guided analysis and argumentation, in later stages of the study's evolution (because I met this framework late in my study). I engage primarily in an interpretive discourse, while opening up the study in later stages to dialogic possibilities. I focus on local actions and narratives to understand situated, practical knowledge (Ibid: 196). While theoretically informed, the research problem emerged in relation to the concerns of project participants (Ibid: 196). As described in the opening tale of fieldwork, theoretical concepts were explored and developed in dialogue with participants (Ibid: 196). They served as analytical tools for sensitizing me, as the view, and for suggesting order in the work, but I was also careful to keep these concepts open to new meanings and occurrences (Ibid: 196, 202). I focus on consensus building rather than on conflicting interpretations (Ibid: 197), at least initially, because I have chosen to study a phenomenon that I believe is inadequately understood, and I aim more broadly to initiate efforts to clarify and differentiate between alternative forms of collaboration. Some unity and order is required before we can productively introduce disharmony and disorder. That said, I invite alternative reading of the phenomenon in later analysis, complementing but destabilizing the order I initially proposed, reminding myself as well as readers that we are yet in early stages of understanding and would be well advised to keep our studies open.

To generate data from the primary case, I use qualitative, semi-ethnographic research methods and emphasize observation of the work as the key method for generating data. I do this for several reasons. First, ensemble is a rare phenomenon, difficult to capture or measure, requiring a sensitive form of observation and discussion with informants. Further, as this is a study of work and aims to contribute to our understanding of the processual nature of performing collaboration, a set of qualitative methods that relies heavily on interviews, for instance, is less suited to this study, as interviews are primarily useful for understanding how people make sense of their work and prioritize issues, but are "not particularly credible sources of information on what people actually do or how they do it" (Barley and Kunda 2001:84). At the same time, a focus on work practices at the exclusion of social life and surrounding activity would limit understanding of the phenomenon. Interpretive studies frequently use ethnography to consider the full person in the

organization (Deetz 1996:202). Finally, observation allows me to leverage the unique access to data provided, as well as my own prior experience as a member of a theatre ensemble for understanding through observation the work of rehearsal and for plotting compelling stories based on observation as a method of analysis (Richardson 1994).

I qualify the study as *semi*-ethnographic as a way to recognize that ethnographic methods, guides for observation, and writing style influenced my work (Van Maanen 1988, Moeran 2005, Spradley 1979, Kunda 2006), as well as to acknowledge that a full ethnography was neither attempted nor desirable given the research problem. I wrote fieldnotes as ethnography to describe and understand the social world of the participants, the context in which the collaborations were taking place, and my role in forming interpretations. However, while remaining open to other observations regarding what organized the field and mattered to participants, I began fieldwork with the specific intent to explore the phenomenon of ensemble. This was a case about ensemble, and how it might be better understood as a result of being attempted in stretched conditions. Also, while discussion of culture is relevant to understanding the empirical setting, including the shared training, work methods, and aspirations of these string musicians (Faulkner 1971), as well as the social and life functions beyond the work (Deetz 1996:202), I did not perform a study of culture. Finally, I had limited time in the field (a matter of weeks) framed by the project's duration, not allowing the kind of immersion into the world that would be expected of a full ethnography. While I would have welcomed more time with these musicians, that time would have been of questionable relevance to my inquiry.

My study is best described, and best benefits from description, as a "case study" (Eisenhardt and Graebner 2007, Eisenhardt 1989, Yin 2003). My intent is to understand a complex contemporary and social phenomenon, the process of ensembling, and address the phenomena in its context (Yin 2003: 13), without "highly isolated variables" (Stake 1978:7). While boundaries between the phenomenon and relevant context are difficult to draw, the event of the project *Towards Silence* was bounded in time, and the population of people immediately involved in the performance of the project relatively easily defined, providing a clear unit of analysis (Yin 2003). Conceiving of *Towards Silence* as an "embedded" case study was also readily done and further benefits analysis by enabling a more detailed level of inquiry (Yin 2003) and presenting opportunities to increase learning by comparison between units (an analysis I perform in Chapter 8; Yin 1984). The US and UK phases of the

event offer themselves as subunits of analysis, as do each of the seven quartets involved in the project, given that each has their own unique history and social dynamic. At times in data generation and analysis I also consider individuals as distinct units, particularly on the basis of interviews, which ranged from semi-structured to open and increasingly aimed at eliciting their unique and potentially conflicting experiences of the project, based on the expectation that each will "have had unique experiences and special stories to tell" (Stake 1995: 65). I engaged in comparisons across quartets and individual musicians, to seek commonalities and variations between their behaviors and attitudes towards the work (see Chapter 8 in particular), paying attention expressions of disagreement or difference. Learning further increases when analysis moves between sub-units and the event as a whole, considering relationships between the parts and the whole; for instance, how learning was carried over across the US and UK phases, or how one concert event differed from another. The case study suits my interpretive work: it adds to our experience and understanding, "proliferates rather than narrows", so that one "is left with more to pay attention to than less" (Stake 1978:7).

As appropriate to the case study method, I engaged multiple methods of data collection/generation, including observation, interviews, document analysis, digital information, photographs, diagrams, and more (Eisenhardt and Graebner 2007: 28). These methods each generate different kinds of data, providing both complementary learning and new insights, and at times enabling verification (Yin 2003, Stake 1995, Deetz 1996). My process of building theory was "highly iterative and tightly linked to data" (Eisenhardt: 532). While I carried theoretical concepts with me into the field as tools for guiding observation, I generally engaged enfolding literature after data was generated, and later in the process of analysis towards the development of theoretical contribution (Eisenhardt 1989: 544-45). Finally, conceiving of this study as a case study is fruitful for practical relevance and future research. Stake (1995) suggests that data generated by case studies more readily resonates with readers, facilitating greater understanding of the phenomenon. The study began as a multi-case investigation, and my intent is to pursue transferability on a case-by-case basis, *Towards Silence* being the first in what I hope will be an ongoing study of examples of ensemble-like collaboration in diverse conditions.

Studying "stretched" phenomeona as a strategy to increase understanding

I chose to investigate ensembling by studying it in stretched conditions as opposed to in its natural habitat with the idea that studying this phenomenon under duress will likely teach us something new, in terms of its endurance, stamina, critical features and conditions for success, and limitations. We can consider this exercise as similar to testing the performance of a new car. We learn something about a car's performance capabilities when driving it in normal conditions. But when we take it out for a drive in extreme terrain or weather conditions, or put it on a racetrack and run it at maximum speed, we get to explore the boundaries of its performance and learn how far it can be stressed before it breaks or crashes. Through a series of trials, we end up with a more nuanced understanding of the car and its potential.

Stretching also helps us better prepare to transfer learning to other examples of collaborative creativity. While the conditions of the *Towards Silence* project don't offer a perfect parallel to the work of groups in distributed business settings, stretching affords us the opportunity to consider how ensemble might look in other settings, and how groups might be capable of achieving a quality of ensemble in their collaborations in conditions we might otherwise assume to be beyond tolerance. For instance, we get a chance in this case to learn one way in which coordinating technology (the click-track) can be incorporated into a work process geared towards generating spontaneous variation towards an unanticipated outcome, a discovery that defied the expectations of the participants themselves. Also, because of the way in which the process happened to unfold, we get a chance to study the impact of stretching the work in one way before we proceed with the next stretch, enlarging the potential for learning. Participants didn't stretch all the conditions at once; they didn't combine extreme weather with racing conditions to start. They enlarged the group size first, and worked in close physical proximity while absorbing the shock of difference. Then they increased spatial distance between quartets, experimenting first with how to collaborate across the divide organically, before adding another stretch, the coordinating technology. When participants couldn't "take the corner" by proceeding one way, they backed up and approached it in another way, learning through iterative experimentation. As a last stretch-test, they addressed variability of spatial configuration.

Finally, as indicated by this last description, stretching provides opportunity to

learn alongside participants, as they learn by doing (Lave 1988). The impact of increased constraint can't be anticipated in entirety, and we learn in this case that sometimes effects surprise expectations. Plans are less reliable, and participants are sensitized to the situated nature of their knowing and action (Suchman 1987). New conditions call their usual assumptions and ways of working into question, and require their full attention and skill to address. As they engage in this process, tacit knowledge and experience is made explicit in discussion and debate, and they become more active in generating data through increased reflection, experimentation, and evaluation.

Epistemology

I have already described this study as a primarily interpretive one, with moments of dialogic possibility (Deetz 1996), a framing I came to after data generation and analysis had begun, but that nonetheless helped me focus my arguments. As previously mentioned, my epistemological perspective for this study has evolved over the course of fieldwork and analysis, theoretical study and conversation with colleagues. An early version of the research question, "What is ensemble, and what are its limits? If we stretch it, at what point does it break?", presumed ensemble as a fixed thing that could be measured and "break" if properly stressed. This formulation made sense initially, because in the performing arts we call a group that collaborates in a special way "an ensemble." However, I have since differentiated between ensemble as a description of a group of people who maintain a certain relationship to one another and work a certain way, and ensemble as described, in theory, as an emergent quality of collaboration that is called into being through certain actions, behaviors and processes. It is those actions, behaviors and processes, as well as the conditions in which they occur, that have yet to be more thoroughly understood. Ensemble, in this conception, does not exist to be perceived and studied outside of the process that summons it into being and the event of its becoming.

The study's multi-case parent project, *Artful Making,* in which I was involved as a member of a team, informed my initial approach to generating and analyzing data, and, as previously stated, positioned this study on a consensus-building trajectory with both normative and interpretive interests (Deetz 1996). The inductive-deductive multi-case study was designed to both generate new data and test hypotheses generated by an earlier

inductive investigation (Austin and Devin 2003). As I participated in development of our methods for both quantitative and qualitative data generation and case analysis, including interview protocols, a rigorously designed coding template and a survey for triangulation, I was well versed in those methods and concepts. I considered this experience an asset to my ongoing research, and expected I could helpfully build on my familiarity with the parent project's methodology as well as the concepts and variables developed in that study. Thus, I set out with the aim in my investigation of special forms of collaboration to elicit variables; suggest relationships between conditions, behaviors, and outcomes; and generate hypotheses to later test in multiple cases, in order to build arguments for generalizability.

Once fieldwork began, I focused on generating rich data primarily through observation, and experimented with new methods tailored to the project and emerging problem I studied. As my study and my understanding of the study evolved, I realized the interpretive approach more appropriately suited to my emerging research problem and intent, my approach for collecting data, and my efforts to articulate arguments. While I "produce objects" of study for "temporary methodological convenience" (Deetz 1996: 195), such as the diagrams I produce in my iteration-based analysis of ensembling in Chapter 6, my intention is rather to engage multiple methodological paradigms, insofar as they help to increase understanding. Deetz argues that interpretivist studies can contain positivist conceptions and assumptions (Ibid: 195). I suggest such conceptions, like the diagrams, as one way of understanding how participants organized their work in order to evaluate options, make decisions, and increase the likelihood of achieving their aspirations. This method of analysis produced a description of the kinds of actions and behaviors that seem to mediate between conditions and an increased likelihood of ensemble, according to participant beliefs, and it helps us engage in consensus-building, in dialogue with theory. I then subject this analysis to the inclusion of a possible alternative (Ibid: 194) by producing a "disruptive" phenomenon, describing moments in which participants created alternative potentialities that could not be anticipated in the former analysis.

While I focused primarily on consensus-building arguments to establish a coherent understanding of the phenomenon of ensembling, I opened the study to multiple perspectives and possibilities for understanding ensemble, inviting dialogue to increase the precision with which we understand this particular form of collaboration and how it interacts with changing conditions. For instance, I present the two alternative

interpretations described above. I also expose the dominant participant experiences and theory to alternative realities experienced by "outlier" participants. As in the opening of this chapter, Jonathan conceived of and experienced dominant leadership differently than his colleagues, who largely rejected it as antithetical to ensemble. Again, in this way, "the 'mirror' gives way to the 'lens'" and I open the study up to dialogue (Deetz 1996:197).

What I might have done

I could have used this case study to generate very different kinds of data. In the initial design of the study, I considered several of these routes. For instance, I might have focused on eliciting other variables, such as variables to describe the modes of communication engaged in ensembling in stretched conditions, building on the work of Seddon and Biasutti's (2009) study of string quartets in natural conditions. To the degree that I could perceive these modes (which would have been a challenge to me as a non-musically-trained observer) and differentiate between them, I might have measured the frequency and duration of their employment to different ends. This might have contributed to our understanding of the impact of stretched conditions on communication form and frequency, and possibly the relationship between tacit and explicit knowledge sharing in high-performing teams.

I could have performed a similar detailed analysis of leadership and work activities. I might have generated a typology of leadership actions performed in this process of ensembling, and used findings to contribute understanding of how leaders might create the conditions for ensembling, building on the work of Hackman (2002). More likely, I might have explored this typology of leadership actions and behaviors as independent of a leader-role, and conversed in greater depth (than I do now) with theory on shared, distributed and dynamic leadership in groups. I could have generated a typology of rehearsal activities more broadly, distinguishing for instance (and this I considered seriously) between activities geared towards developing and demonstrating technical mastery and those activities aimed at generating artful and spontaneous variations, measuring frequency and duration of time spent on different categorical activities and studying the patterns of relationship between them. In an early phase of analysis, I used theory and prior experience to generate such a typology, but my efforts to tease apart technical efforts from artful ones

in observation of the work process proved, not impossible, but beside the point, as musicians pursue these in tandem. Even when practicing notes in a score, the music is working its inner alchemy upon the player's aesthetic imagination. While I did observe that stretched conditions required the musicians to spend more effort than usual on the task of coordination, they refused to address that difficulty as a matter of technical proficiency alone, and instead developed methods for coordinating their work that provided them freedom to exercise their artistic virtuosity.

The approaches suggested above, unless studied for the movement between modes and actions, tend to isolate activities and behaviors from one another, breaking the work into parts, which, as suggested by my rejection of the technical-artful dichotomy, creates the potential for misunderstanding the way in which these musicians think about and perform their work. Also, as I argue in the introduction, an emphasis on discrete variables may deter us from making progress in our understanding of how collaborative creativity is performed as a process. I risk adding to the already long lists of key practices to include in our creativity toolkits, extracted from the processes in which they are relevant and negotiated, and almost impossible to perform by imitation. As theory tells us, ensemble is an emergent quality, and can't be intentionally "done" (Austin and Devin 2003). As an emergent phenomenon, ensembling involves co-occuring processes, not a sequential series of actions. In order to develop the differentiated understandings of collaborative processes I argue we need, we require knowledge about how processes fold and unfold, and how teams interact with conditions and address difficulties live. This is especially the case when the decisions or actions of performers appear initially inefficient, contrary to theoretical expectations, or even nonsensical, as they sometimes do until we uncover the relationship between what they have done before, what they aspire to next, and what they maintain as non-negotiable in the face of intensified constraint.

I might also have gone further in my epistemological shift, towards a social constructivist approach, and focused analysis on highly localized, discursive forms of organizing and how participants used language to construct behavior. An appealing avenue might have been to analyze their interaction and understand the performance of ensemble as situated cognition, or "knowing in practice" (Suchman 1987, Lave 1988, Hutchins 1995, Orlikowski 2002). Aside from my training as a researcher in a different tradition (neither social constructivism nor cognitive science), two things hold me back. First, I confess to

being invested in the possible practical application of new understanding. I believe this study has broader applications outside its own context, and findings will be transferrable to other settings. Theory suggests already that ensemble, as a special quality of an extreme form of collaboration, is occurring in other contexts outside the performing arts; I have seen examples of ensembling occuring in other contexts as a participant in some of this research. While I do not mean to suggest we try to predict and control this phenomenon, I do believe that the methods and processes in which our informants engage (methods I recognize from my own experience in the theatre) are transferrable to other kinds of making processes, if better understood. Also, the ways in which informants respond to constraints by creating unanticipated possibilities, a capability many artists and creative workers exercise, has much to offer to practices and processes in other creative industries. In this belief, I am consistent with Austin and Devin's argument, given the changing nature of work in the "knowledge-" or "creative economy," work in business settings is beginning to resemble, in important ways, the work of artists (2003, 2010). I join them in the work of figuring out ways in which to transfer this learning to new contexts.

Second, the work of artists is frequently romanticized as passionate, disorderly, and illusive, when much effort in fact comes down to highly disciplined, structured and practical exercises, something I both know from my prior professional work and which I saw repeatedly demonstrated in our multi-case study (Austin and Devin 2003, 2010; Devin and Austin 2012; O'Donnell and Devin 2012). From my experience directing plays, I also know much more time can be spent rehearsing how to get a tea service on stage, set properly, used to serve tea, and removed again in the course of a scene's brief action, than time spent in deep discussions over thematic content or internal emotional shifts. The latter things are more likely to be discussed explicitly when something in the process breaks down. "What do I want, and how do I get what I want?" are two basic questions colleagues and I usually address together when making plays, sharpening actions and their effects. While the work of play making, as any social activity, involves subjective experiences, complex social dynamics played out over time, and divergent sensemaking processes (observations relevant to an interpretive study as well) the makers emphasize getting down to the task itself, ordering their work to maximize use of time, and spend as much of that time as possible doing things, trying things out. I wanted to increase understanding of how they ordered their work in this way. Despite knowing this, I was at times surprised myself to discover how little the musicians I studied discussed the meaning content of the

composition, *Towards Silence*, which was, after all, *a meditation on death*. These discussions were ancillary, and again, typically taken up only when the music wasn't working and the problem was yet to be diagnosed. Taking my cue from informants and my prior experience, I focused my observations and analysis first on action: what they did. Then I engaged different analytical lenses to discern how they ordered their work, and to look at intention: why they did it that way.

DATA GENERATION

In this section, I offer a detailed description of the methods I used to generate data and how I worked with these methods. As mentioned before, since the project involved three distinct phases, so did my fieldwork. The three phases were as follows: (1) UK pre-rehearsals in February 2009, (2) US rehearsals and premiere performance in April 2009, (3) UK rehearsals and performances in four venues in late June/early July 2009. These phases allowed for an iterative approach to data generation and analysis. Each phase provided me opportunity to focus my observation and investigation differently, inspired by what was emerging as important to participants and aimed at responding to variations in their experiences. Each interruption in fieldwork provided opportunity for me to revisit my research problem and study design, and in light of findings to consider new ways to frame and prioritize what I was looking for, new questions to ask informants, and new strategies for collecting additional data.

Observation

With the processes and practices of the quartets in focus for the primary case study, I prioritized close, direct observation in the field and extensive note taking (Barley and Kunda 2001, Van Maanen 1988, Yin 2003). Fieldwork was conducted across what was then known to be the complete lifetime of the project, from February to July of 2009.[37] In addition to observation of designated rehearsal time, fieldwork included observation and at

[37] Further performances at St. Martin-in-the-Fields and Salisbury Cathedral were afterwards organized in 2010, and a recording produced by Signum Classics was released in November 2010. I purchased tickets to Salisbury (2011), but a medical emergency sadly prevented me from attending.

times participation in independent quartet rehearsals, ancillary conversations, meals, social gatherings and correspondence related to the production of the events. Doing so, I was able to consider how social and life functions beyond the work, including the building of new relationships, engaged participants and influenced the work itself (Deetz 1996).

In general, I focused observation on features of the work process itself, as it unfolded. I looked at what participants did first, second, third, and so on, documenting what actions they took (dialogue and gesture being included as action), and decisions they made. My second tier of observation considered individual behaviors and relationships between individuals, as well as quartet behaviors and relationships between quartets. I observed when quartets behaved as distinct entities apart from the other quartets, and when musicians blended more as a larger group. I observed on whom and on what participants directed their focus, and what sub-plots were happening on the periphery of that main action.

Drawing on my theater experience, I paid attention to text, or what was said, as well as *subtext*, the underlying intention behind what was said, which can at times be in conflict with the statements' literal import, and which needs to be discerned. Discerning subtext is an art we are all well rehearsed in, as we do it in everyday conversations, though some of us are more empathetically attuned than others. Performing artists are one group of experts who train this capability, primarily through observation, imitation and deep listening (O'Donnell and Devin 2012). The speaker's voice, breath and body reveal subtext to a sensitive observer. Subtext is also exposed in the way the listener receives and understands the statement or question, and changes tactic in reply, as well as in how the original speaker reacts to the response they earn. Subtext, called to light, elucidates relationship dynamics, insecurities, objectives, needs, and hopes for the work, sometimes those of which the person being observed is yet unaware.

In preparation for each phase of the project, I organized agendas for my observation, which served as a guide or checkpoint along the way, though plans were often overruled by the emerging phenomenon. In the first phase, anticipating I might elicit variables and design taxonomies of activity, I focused on the work process (what the musicians did), examples of leadership, methods of communication, when and how decisions are made, use of time, use of technology, the work environment and social activities. In the second phase, I focused observation similarly, on a new set of participants

in the US. Technology played a bigger role in this phase, as well as the work environment, as they rehearsed in the performance space and shifted configuration frequently. By the third phase, my focus was directed more on methods and processes for coming together as an integrated group, how they worked on that "problem," and how they responded to the series of "stretches" to which they were exposed in this phase, both in terms of technology and multiple performance spaces and configurations.

As I observed the work, I regularly reminded myself to reflect on the possible disconnect between what I was looking for (using the lenses of prior experience and theory), and what I was actually seeing. I asked myself, "What is the event?" as a way to perceive what seemed to be taking precedence in the work that moment or that day. At times this event dealt with addressing a problematic circumstance outside the formal frame of the project, such as the project leader's illness, getting through rehearsals with a missing cellist, or surviving a hot summer day. The structure and character of different spaces being a critical variable condition of the work, I took time when arriving early or on break to describe the environment, sensory details, and atmospheric qualities including the quality of light, temperature, emotion and energy. Also, aware that I was video taping rehearsals, I allowed some details (such as specific conversations) to slip by in note-taking, and instead tried to capture what the camera could not, such as these spatial qualities and tactile experiences. When the cameras were focused on individual quartets, I focused my observation on what happened in the spaces between quartets.

Videotaping

In order to supplement observation, all rehearsals were video taped by one, two or three strategically placed video cameras. Over 100 hours of video data were captured over the lifetime of the project. This effort was made for multiple reasons. Given the volume of concurrent activity happening at any given moment, it was naturally impossible for me to observe every action and conversation. That's a natural constraint of fieldwork, which could be considered an acceptable limitation. However, to aggravate this difficulty, the four quartets were frequently working at significant distance from one another, meaning I had to choose from which vantage, and proximity to which group, I positioned myself. In those configurations, I only had access to part of the story. Video cameras enabled me to capture,

if not all, parts of the other simultaneous activity I was missing. I was also observing and attempting to analyze particularly complex and embodied work tasks, such as musical collaboration (Heath and Hindmarsh 2002). As much of this action occurs simultaneously and without language, in gesture or glance, for instance, video data increases the potential for data generation at a later stage.

Video also enabled me to revisit events from different perspectives and in light of later learning or discovery. This was particularly useful given that I am not musically trained, so when participants pointed out during later conversations what they were doing, I could go back to look for evidence of the activity that I had missed. Given that I collected data at the start of my PhD, with little time for preparation or study of relevant literature, and given that the study proceeded iteratively, later analysis was less constrained by earlier data generation. I could revisit recorded data and look for new things. Video data further "serves as a control on the limitations and fallibility's of intuition and recollection" and guards against "intuitive idiosyncrasy" or "selective attention or recollection" (Jefferson 1984 cited in Heath and Hindmarsh 2002). Thus, video offers opportunity to perform verification and check fieldnotes.

Interviews

To clarify and augment results of observation, I conducted videotaped, exploratory and semi-structured interviews with informants, grounded in the context of their observed work process. My primary aim was to compare what I was observing to their experience of the work and to learn about other activities and dynamics occurring that were unobservable to me. Questions were frequently grounded in what they just did (a process I could observe), as a way to minimize informants theorizing or relating an abstracted analysis of how they work, combined with questions meant to elicit what I may have missed or misunderstood in my observation. I rarely asked them to reflect on their work in general, but regularly asked them to reflect on their progress on this project so far and what they hoped to do next, how they were relating with others and what their experience of ensemble was in this project, and whether there was anything particularly different or difficult about work on this project compared to other work. When I asked about ensemble, I asked them to offer a particular experience of ensemble they have had, and relate that

story.[38] Sometimes questions were more tailored to specific quartets or musicians, based on incidents I had just witnessed.

Interviews took place as way opened. I quickly learned that musicians rarely arrive early to rehearsals and tend to depart immediately after. Breaks were often taken up with prioritized personal needs. Given time constraint and limited access, I made three strategic choices, as follows:

First, I kept it short. In some cases, interviews lasted as little as 6 minutes. I had to drastically pare down my planned, semi-structured interview schedule and focus in on core questions, rooted in observation of their work and geared towards generating understanding of how they were experiencing the constraints of the project in relation to their usual way of working and their aspirations for the project. I also made decisions, often on the fly, to ask some questions consistently across groups, and to ask other questions of only one or two groups in order to cover more territory collectively and to elicit special stories and experience unique to individual participants or quartets (Stake 1995: 65).

As a second strategic choice, I often interviewed musicians in their quartets, as groups, rather than as individuals. This minimized the difficulty in organizing time to meet, and participants were more likely to agree to the interview if their group was participating. A benefit to interviewing the musicians as quartets is that they frequently responded to questions by discussing them with one another, bringing together sometimes divergent experiences to develop a shared sense of what happened and what they hoped would happen next. Speaking to one another, they were more inclined to use their own native language. Also, they frequently enjoyed these opportunities for reflection as a group, an activity they might not have otherwise made time for, and this enjoyment made them receptive to extending the conversation, either beyond the anticipated time or in later discussions. A drawback to this approach was that certain logics or perspectives might dominate our discussion at the exclusion of conflicting or less readily articulated perspectives. Another drawback was that some members noticeably deferred to colleagues more naturally inclined to talk or to assume a representational role speaking for the group. It was more often the case that they engaged equally in discussion, eagerly disagreeing with

[38] These interviewing strategies were informed by the approach I developed with colleagues on the *Artful Making* parent study, and by recommendations provided by Professor Jennifer Greene, in "Workshop on conducting qualitative interviews." Copenhagen Business School, May 2009.

or supporting what one another said in efforts to build their own group understanding of the process in which they were engaged. But in those instances when members grew quiet, I both observed this as a part of the group dynamic and made a point of engaging them with a direct question, when possible.

As an exception to this strategy of group interviews, I interviewed members of the Medici String Quartet either individually or in pairs. I did so primarily for practical reasons: they were less likely to be traveling as a group to and from rehearsals, and more likely to be operating on their own schedules, so I could rarely get two at a time to sit together. That only happened in the US, when all members where traveling to New York, and not in their home territory. This accidental strategy turned into an asset in that Medici had years of expertise to offer in their assessment of the work, and had all cast themselves in a leadership- or mentorship-like role within the project. Three of them were also the only participants who experienced both the US and UK phases of the project and could make comparisons between experiences and participants. Therefore, I often asked them to evaluate the work of others, and they each had different observations to make about the other quartets and the progress of the work that were specific to their own priorities and sensitivities. They each also practiced different leadership actions during the project, and those were often a topic of discussion, in some cases with me suggesting to them, based on observation, that they were performing leadership in the group beyond what they were aware of doing. Furthermore, given the longevity of their relationship as a quartet, a history that was rife with conflict as well as achievement, they seemed to speak more openly about one another when I engaged them as individuals, offering different perspectives on that singular experience. One comparatively extended interview (30 minutes) was with Paul Robertson, the project leader, in his home following the first phase of rehearsals. I prepared differently for this interview, as Robertson was the project leader and my original contact, and asked him more questions related to the full scope of the project. Off camera conversations with him continued regularly, and typically opened up deeply personal perspectives on the unfolding experience in regards to Medici members' relationships with one another.

My third strategic choice was flexibility, in terms of location and timing. During rehearsals, interviews were held in a corner of the rehearsal space—for instance, in the loft of the barn in the UK—a condition that did not afford privacy or guarantee confidentiality.

During performances, interviews were captured in multiple settings, ranging from the performance space to separate dressing or rehearsal rooms. Participants couldn't always commit to a pre-determined time, so I had to improvise and help them identify possible space in their schedule. For instance, I was able to negotiate interview time by following a group of musicians to the nearby pub, asking them questions while they ate dinner. I joined members of the Medici Quartet out at breakfast in New York the morning after the premiere. In another instance, I ditched the post-premiere-party to leap aboard a train with one quartet and enjoy an hour's conversation while they traveled back to London.

I made a decision at the start of fieldwork to include as informants the 16 string quartet musicians only, and to exclude other participants, such as the event producers and the Tibetan Singing Bowl player (called for in the score). The latter could be considered an ostensible ensemble member. The Tibetan Singing Bowl player in the US was a leading professional in his field, whereas in the UK, teenage music students (friends of Robertson's) were used to fill this role. This divergent approach to membership criteria, the limited interaction the string players had with him or her, and the fact that the Tibetan Bowl player was usually added in during final rehearsals as a kind of after-thought, led me to exclude them from interviews about the process of ensembling in stretched conditions.

Visual Media

I used visual media in addition to videotaping in order to capture the particularly visual and spatial nature of the data: I took photos, made drawings of progressive configurations, and took detailed measurements of each rehearsal and performance venue as well as long distances between participants. On the Spiral staircase in New York, measuring required swinging ropes across landing handrails, measuring angles, and recalling geometry to calculate distances (see **Figure 4.1** and **Image 4.1**). I tracked the change in seating configurations as they evolved throughout the process. This data ranges from measured distances between quartets positioned in performance configuration (see **Figure 4.2** and **Image 4.2**), to more subtle observations about how they orient themselves physically to their quartets and to the larger group (see **Figure 4.3** and **Image 4.3**). In the case of short distances between members (1-4 feet), I base measurements on an eye-ball guess. I pair these drawings with photos when possible, as photos help the reader make sense of my

schematics, to show how musicians lived in these spaces, and to bring the reader closer to the sensory experience of fieldwork, communicating other information than can be described in words or drawn in two dimensions (see, as a last example, **Figure 4.4** and **Image 4.4**). Increased spatial distance and variable configurability being key dimensions along with the work was "stretched," I generated this data to inform questionnaires (discussed next), to help with comparison across subunits of analysis within the *Towards Silence* project, between the US and UK phases, for instance, and to have in anticipation of cross-case comparison in a future Stage Four of the study.

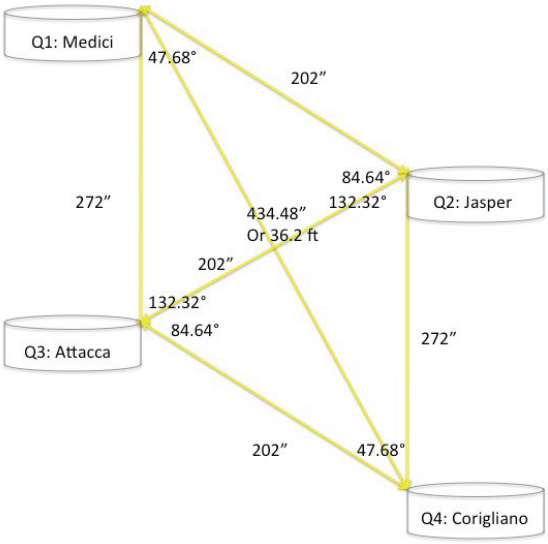

Figure 4.1. Measurements calculated between landings of the Spiral staircase, Rubin Museum of Art, New York City.

Image 4.1. The Spiral staircase, Rubin Museum of Art, New York City[39]

[39] Photo by Peter Aaron/Esto

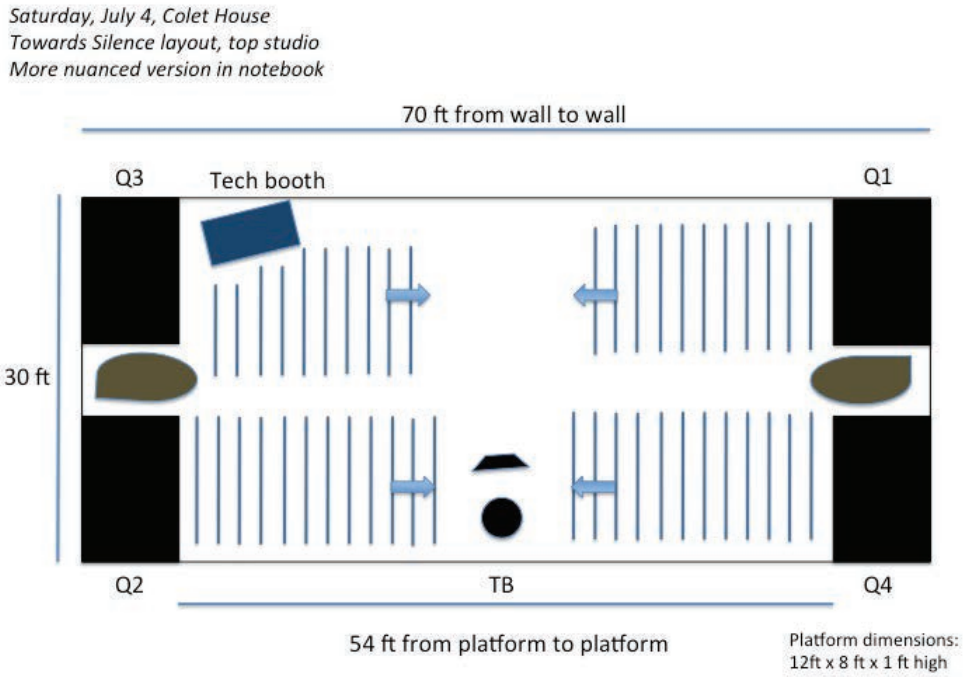

Figure 4.2. Colet House ballroom layout with measurements

Image 4.2. Colet House Ballroom; Q1 and Q4 seated on platforms in rehearsal.

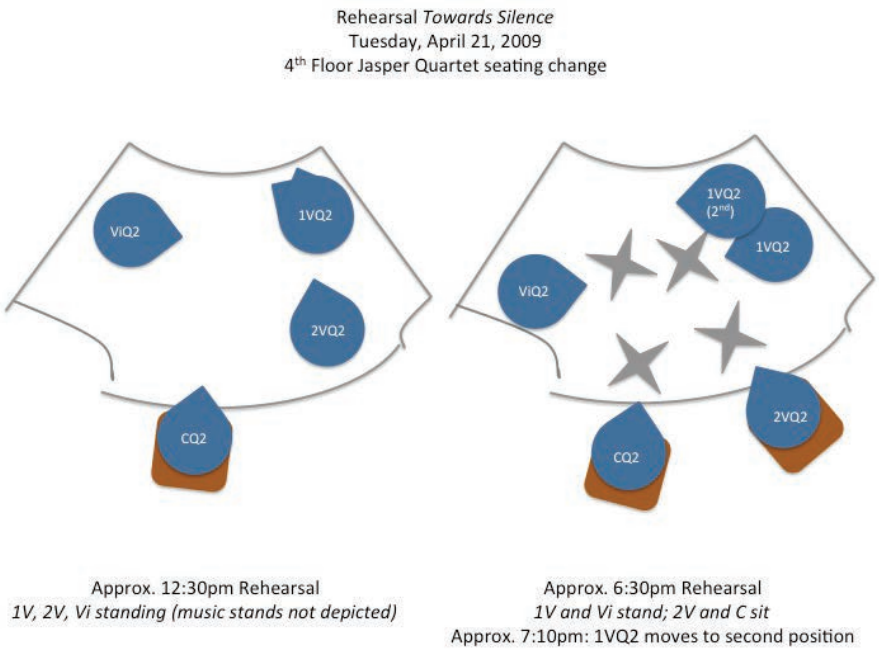

Figure 4.3. Quartet 2 adapts their configuration, in relation to one another and to the larger group, over time, on the 4th floor staircase landing.

Image 4.3. Quartet 2 in rehearsal, April 21, first configuration in Figure 3.

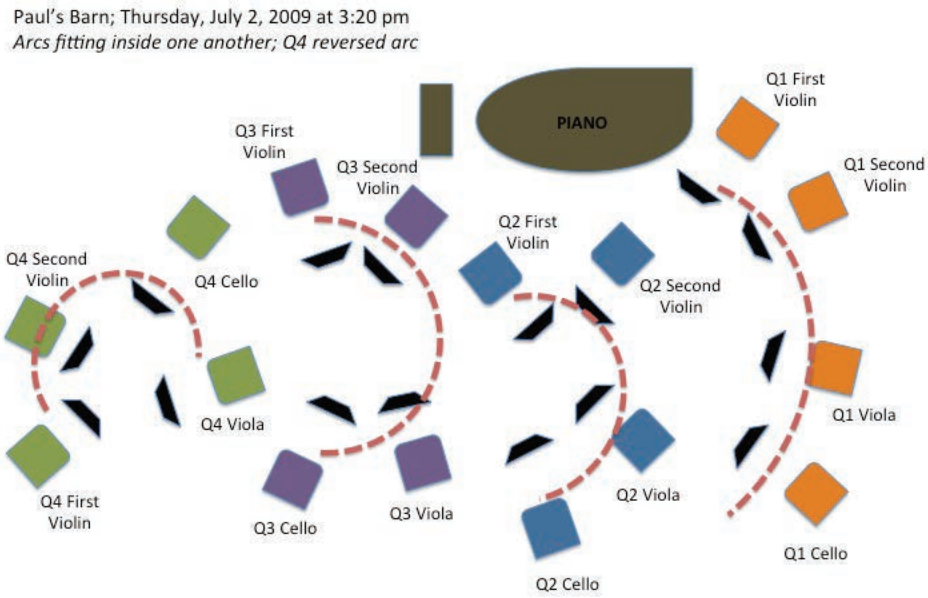

Figure 4.4. Quartets rehearse in "nested" configuration to disrupt visual communication.

Image 4.4. Quartets rehearse in "nested" configuration, Paul's Barn, July 2. Viewed from the right loft; Q4 is in the background, Q3 in the foreground, and Q2's first violin center.

Questionnaires

Using drawings of performance configurations, I designed questionnaires to collect data from musicians on whom of the other musicians they could see and hear, hear only, see only, or neither see nor hear. (See **Figure 4.5** as example.) Originally designed to generate quantitative data, and performing that role in the US phase of the project, these forms ended up generating qualitative data in the UK phase of the project. While some participants in the UK readily completed the exercise, others put up resistance. They were willing to answer to comply with my request, but were eager to let me know that whether they *could* see or hear was beside the point of whom they *chose* to see and hear, or "listen to", what the quality of that experience was, and what purpose it served. In dialogue with participants, questionnaires provoked conversations about obstacles and learning associated with the project, serving as another opportunity to generate new data with them as well as to clarify or validate prior observations. The following excerpt from my field journal provides an example.

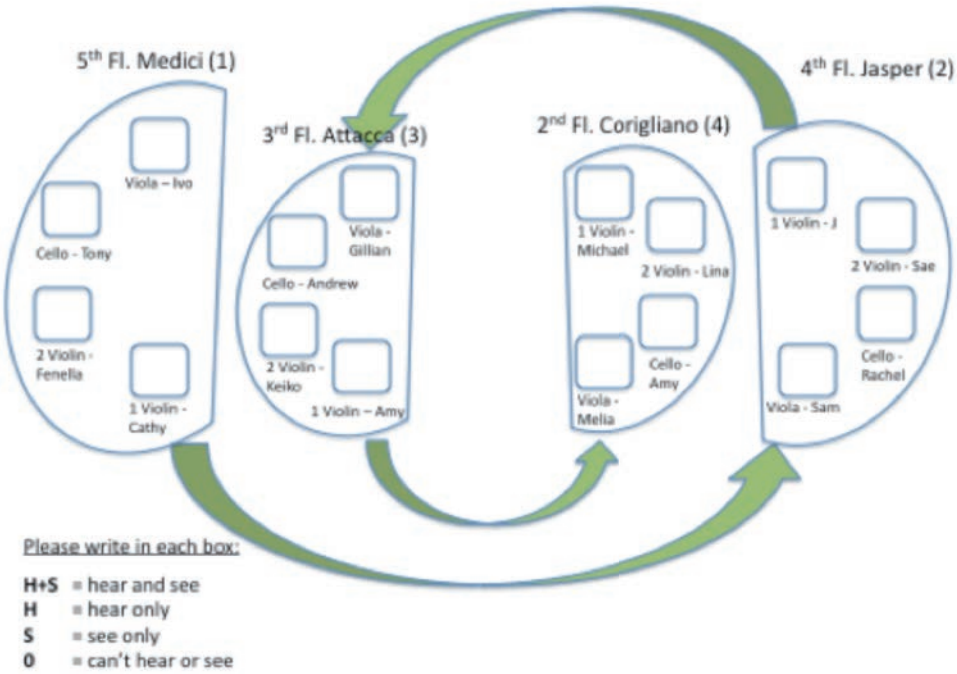

Figure 4.5. "See and Hear" Questionnaire, designed for Spiral staircase configuration, Rubin Museum of Art, NYC

Westminster Synagogue, Kent house, Sunday, July 5, 2009

… The "See & Hear" questionnaire I made to review Saturday's performance was an unanticipated hit with the musicians and launched us into impromptu conversations, generating very different responses than those I had gotten in New York. In New York, I had passed out a diagram of the seating layout and let each individual complete the questionnaire (filling in the blanks) on their own. This time, I used the end of the dinner break after rehearsal and before the concert to visit tables, show the musicians the questionnaire which depicted a layout of the seating arrangement at The Colet House, and ask each person the question: "Who could you see and hear, see only, hear only, or neither see nor hear?" I recorded their answers.

Some, like Simon who professed to loving questionnaires, took them in hand to complete themselves, but many preferred to converse about it, as they found the question peculiar in some way, and were able to frame it more fruitfully to express their real concerns. There is who they could see and hear, but more interesting to them was how they used those people, and how they experienced the quality of interaction and sound. For instance, Lydia prioritized feeling the pulse of the group over hearing and seeing others. In some cases, she found it "annoying" to hear another quartet, during a section in which their rhythms conflicted, and was trying to "ignore" some and "filter in" others. Natalie was inspired by "good contact" with a cellist in another quartet, describing their interaction as "fun."

I started with Paul, quietly eating his dinner apart from the others off the edge of a baby grand piano. I knelt at his feet (a gesture he appreciates), and he answered the question, then he just kept talking, offering me a gentle, generous lesson about a few things musicians just know. For instance, that the two seated in the middle of a quartet face outwards, so often get distracted by the audience, and that the cello takes longer to sound than the violin, so a really fine cellist will get the strings vibrating before the sound. "Does Tony do that?" I asked. "Yes, he does."

Seated as the rest were, in groups of 2-4 at makeshift dining tables, conversations expanded quickly as they listened to one another, then expressed conflicting experiences. Drew, who initially gave polite but cursory answers, saw others engaging

in longer conversations with me over the questionnaire and sought me out to get in on the group reflection. Ed had almost nothing to tell me alone, but as I chatted with Drew at the same table, Ed chimed in, offering insights into how he was experiencing leadership differently in these conditions. The click-track, in his experience, was forcing them into the position of focusing on Simon as a leader, whereas "normally, we'd pass [leadership] around." He didn't even bother to wear his glasses in order to see across the 54+ feet to other quartets, given this condition.

I wish I'd had a video camera running to capture all they said—better by far than any interview had solicited, because they were speaking to one another more than to me. But I madly jotted down as many notes as possible and prayed I could come to some peace that this is part of fieldwork. I've been warned the best stuff will happen off camera, and largely because there is no camera. This doesn't matter so much in rehearsals—they are too absorbed in their work to pay mind to discrete cameras—but it does matter when it comes to direct conversation.

Participation

Immediately before writing the above reflection on questionnaires in my field journal, I had commented on the shifting relationship I experienced with participants as I became more involved in supporting project work:

…As horrid as Saturday's fieldwork was for me—I accidentally deleted performance video and an audience member dislodged my second video camera—yesterday was splendid. I was able to be helpful to many people and felt myself owning the project more. [Event producer] Renee greeted me as "efficient Shannon," based on my recent effort to take on a set of last-minute administrative details via email, to aid the ailing Paul. She set me up as hostess, tasked with giving musicians who arrived at varying times a tour of the facilities. "You're becoming our manager," Simon said. It turns out being a kind of "manager" was useful – the musicians talked to me about their needs, and I learned what they were and attempted to solve them to their satisfaction. More of them sought me out, asking me about my research, then offering some marvelous little insight about what they do in response to whatever answer I gave them.

Project participants generally welcomed me into rehearsals. Since Robertson was project leader, and the one to invite me in, musicians and event producers alike expressed no reserve about having me in attendance. One quartet in the UK invited me to join their private rehearsals, encouraging me to pull my chair up close to theirs. I took care to explain that video data was for research purposes only, and that they could alert me if they ever wanted a camera turned off, but no one expressed concern. One member was sensitive to its presence during difficult tasks, and when I sensed so, I removed the camera from his proximity. I arrived early and stayed late, making myself available for conversation while observing pre- and post- rehearsal social activities. I made myself helpful in Robertson's kitchen before and after group meals were served.

When I started offering or being given tasks to help, I gained new access to informants. I took over secretarial work for Robertson one evening after rehearsals, typed emails to producers as he dictated, was given liberty to respond to requests for information or tickets in his name, and from my position in his office, overhead phone calls in which he described processes of resolution that seemed to be occurring between members of the Medici Quartet whose relationships had been suffering from prior conflicts. As the excerpt above suggests, the more helpful I could make myself as the UK quartets moved from one new performance space to another, the more they started to seek me out, engage me in conversation, and refer to me as their "manager", a function they desperately needed filled. Participation, to the degree I could be of assistance in practical matters, increased opportunities for data generation.

These different methods of generating data produced different kinds of objects and phenomena (Deetz 1996:194-5). These can be considered as produced objects, whether objects that presuppose a kind of natural object in the external world, or objects formed interactionally between researcher and participants (Deetz 1996:195). I move between these methods of production, to consider different aspects of the phenomena and enrich understanding. Observation generated data about actions, decisions, events, conflicts, relationships, and ways in which space influenced the work. From observation I produced objects in the form of descriptions and diagrams that consider the observed process as a

kind of natural object in the world, as viewed in the present. During interviews and other conversations with participants, data on the individual- and quartet-level experience of this process was interactionally generated in dialogue. Sometimes I asked them to confirm, correct or clarify what I observed and provide support for descriptions. But much of our conversation was based on prior experiences (where they are coming from, what expectations they have formed), and on anticipated futures (where they imagine themselves heading, and what they are working to achieve). In contrast to the unfolding present-time process phenomena produced from observation, this method produced data on the interaction between past experience, future intent or ambition, and present experience. By producing objects such as diagrams and drawings, I generate data about spatial arrangements, relations and distance that again presume a natural, external object. Questionnaires, alternately, generated data interactionally with participants, to explore how they experienced these spatial arrangements, relations and distance. By considering these objects all "constituted *as if* they were given in nature" (Deetz 196: 195, italics mine), I free my conceptions from categorization as subjective/objective or positivist/interpretivist (Deetz 1996: 194-5). I carry these different objects with me into analysis.

DATA ANALYSIS

My approach to analysis has been largely discussed in my presentation of the study design earlier in this chapter. I described how I generated a theoretical framework of ensembling from prior research and both challenged and extended that with newly generated data on ensembling in natural conditions. I also generated a proposed theoretical construct of ensemble by collecting participant descriptions from interviews and fieldwork, comparing and categorizing these descriptions while exploring variation, to arrive at a deeper understanding of how they experience and recognize ensemble. I carried these concepts into analysis of the primary case, while exposing them to variation, staying open to new insights as well as supporting examples (Deetz 1996). I then discussed my approaches to analyzing the primary case study by developing an iteration-based interpretation of the process as a way to understand how the musicians ordered their work, then disrupting this analysis by using the methods of ensembling to explore alternative movements of opening the process to uncertainty and reconceiving. Finally, I performed a comparative analysis across subunits of the case study to generate new understanding of how ensemble is

performed in distributed conditions. I synthesize findings from these multiple interpretations to suggest extensions to theory. I use this section to extend my prior description and to elaborate on some special features of analysis in greater detail, primarily my methods of writing and diagramming the process as a form of inquiry.

Data generation and analysis proceeded iteratively, this being an inductive study and therefore "highly iterative and tightly linked to data" (Eisenhardt 1989). Methods for data generation were implemented concurrently, and analysis of these materials happened concurrently, in connection with one another. At the same time, objects produced during fieldwork begged different kinds of treatment and engagement.

Fieldnotes were written up in greater detail, combining insights from my field journal, interviews and informal conversations with participants, amounting to 189 pages of typed, single-spaced material. During analysis, selections from fieldnotes were written as ethnography to describe and understand the social world of the makers and the context in which the collaborations are taking place, as well as my role in forming interpretations (to support verification). I aspired to generate thick descriptions of my observations and craft "tales of the field" as a method of inquiry and as evidence from which to build arguments (Van Maanen 1988; Richardson 1994). I discuss my use of writing as a method of inquiry further in the upcoming section, "Plotting the Field." I searched these descriptions to determine which statements or events or behaviors were instances of frequently occurring patterns, and which were outliers. Findings increased as I applied comparative analysis between subunits embedded in the larger case study (Yin 1984, Miles and Huberman 1984): each individual and quartet at times constituted an embedded case, concert events were compared, and the US and UK phases of the project were considered as distinct units providing different examples of how the difficulty of ensembling at a distance was addressed, and well as progressive phases of the same case, in which learning was carried over by the three consistent members into the next stage of development.

Videotapes collected during fieldwork were transferred to digital files and logged. I referred to them to spot-check observations and to revisit moments I missed because I was located outside proximity of the shot. Video data was not analyzed on its own for this study, though it could be for future purposes. My intent initially was to transcribe and analyze video alongside interview data using NVivo to organize the volume of material I had collected, so that I could readily search video for examples of certain coded activities,

behaviors and events. However, I quickly learned that NVivo could not handle the quantity of large files. Simultaneously, as my fieldnotes, interviews and diagrams were rich enough in themselves, I found myself awash in data, and, given time constraints and constraints related to the "magnitude" of data my study (and my brain) could reasonably handle, I used video in a limited strategic way. I selected specific moments in rehearsal to revisit and review, based on questions arising from fieldnotes and interviews.

Interviews were transcribed from videotape in word documents, then entered into NVivo and analyzed. I identified key themes, flagged theoretical concepts and methods, and looked for examples of divergence from theory. A codebook emerged iteratively in conversation with theory and in tandem with this analysis, but I didn't code interviews exhaustively, as I wasn't trying to analyze them as an independent data set or generate grounded theory. Rather, I considered interview data in relation to what had been observed, as an expansion of understanding on these events, and to help me see new things in analysis of fieldnotes. At the same time, interviews generated other kinds of understanding to introduce to the study, such as how participants evaluated their colleagues, the frustrations they had not expressed to the group, their personal aspirations for the project and their disillusionments. Interviews gave me opportunity to consider informants both as individuals and as quartets, to discern differences between their experiences, the ways in which they aspired to ensemble, and with what they were concerned. In this way, I could access multiple perspectives on the process.

Measurements and rough sketches collected in my notebooks were translated into formal diagrams, constructed in PowerPoint, creating a kind of "flip-book" by which to view changes in configuration over time. These diagrams were combined with photographs to construct a series of presentations, as opportunity arose, to discuss my research with others and provide an illustrated narrative of the participants' interaction with shifting constraints over time. While *questionnaires* ultimately provided more fruitful as qualitative than quantitative data, I used the information I collected at the Rubin Museum (US) and the Colet House (UK) to create a series of diagrams illustrating the participants' ranging experience of access to their colleagues.

I explored the use of more "systematic" and categorical efforts as well: As indicated by the stages in the study, I alternated between using rich description and transcript analysis to identify emerging factors, and compare those with the factors, or parts of

ensembling, engaged in the theoretical framework. I created tables of evidence for different parts of the theoretical framework, particularly the methods and conditions, in order to compare descriptions in theory with the experience of ensemble in natural conditions and the participants' experiences in stretched conditions. Doing so enabled me to search for examples from data that either supported, refined or diverged from theory or from prior experience. I present several of these tables in the thesis. I anticipate this tool will be particularly useful to investigations in a future Stage Four of this study.

Diagramming as analysis

As a way to try to understand the impact of stretched conditions as they were introduced, and to organize the participants' responses to these conditions, I experimented with different ways of mapping the progression of iterative efforts they tried. I started this exercise by creating a table (in Excel) that attempted to isolate the effect of each stretched condition from the next, as well as each response the musicians considered or tried in order to incorporate this condition into their work. I looked at the ways they configured themselves, including data on distance, and what functional tools they introduced to aid in their work (i.e. a metronome, the click-track), and what actions these conditions afforded, in their perception. I tracked what they were able to do in their work, in these conditions, and how they evaluated these efforts. In this way, I could analyze each attempt as its own story, and locate "dead-end" moments that led to a new iteration or attempt. I use these diagrams in my analysis in order to describe the way in which the musicians ordered their work as an iterative process of exploration, reflection/evaluation, and modification. This analysis importantly remained rooted in what the musicians *did,* apart from their attitudes towards the work and experience of social dynamics, although it did also take into consideration how their actions and dialogue reflected their evolving beliefs. Performing this analysis, I discovered moments where certain proposed "solutions" to the problem of ensembling at a distance were rejected, which led me to explore other data to understand why. This analysis serves as the primary basis of discussion in Chapter 6.

Writing as analysis

Writing was my primary "method of discovery and analysis" (Richardson 1994: 516). I took an ethnographic approach to writing tales from the field, in order to imaginatively place the reader in the story world (Van Maanen 1988: 103), give characterization to the cast of informants, and illustrate a learning process in the field. (Moeran 2005: 200-201). I started by writing my impressionist tale while "holding back on interpretation" to draw the reader into the situation to "work out its problems and puzzles as they unfold" (Van Maanen 1988: 103). I focused telling of and later analysis of the tales on how informants experienced and addressed the difficulty of performing in new conditions, what solutions they tried, how criteria emerged for evaluating efforts and the emerging process, how decisions were made, and what changed over time. I wrote using their language as much as possible, to be careful I didn't leap too quickly to theoretical concepts, but retain the nuance of difference in their own conceptions of ensemble and of ensembling.

As I wrote, I learned more about both my myself and my subjects (Richardson 1994). I kept fieldnotes and journals reflecting on, and wrote narratives of, my own experience in the field, including strange or sweet encounters with secondary characters engaged in fringe activities (such as Paul's ancient mother cleaning up after 16 musicians), or my experiences entering and responding to new performance spaces. This "confessional" writing (Van Maanen 1988, Moeran 2005) exposed my participation in the field, ways I had of relating to participants and moments of frustration I experienced, as well as the ways my research interests, prior experiences, personal taste, aesthetic preferences influenced what I saw and recorded. I developed deeper understanding of myself as a researcher (Richardson 1994: 519, 525).

I learned more about participants, as writing slowed me down. I lingered over each individual's use of language, interaction with others and behavioral idiosyncracies. I considered different participants alternately as the central figure of the tale, and paid attention to what they paid attention to. I also developed deeper understanding of my field of study by experimenting with different writing frames and points of view (Richardson 1994: 523-24). Many of these frames were provided for me by writing and dissemination activities I agreed to take on during the course of my PhD work. Here are three examples:

1. I was invited to join in a collaborative book project on the theme of evaluative practices in creative industries. I was asked first to craft a telling of my case study from project inception to completion, relatively free of theoretical interpretation, and focused on examples of evaluative practices in which participants engaged. I was given feedback by colleagues in discussions together of our collective work, then asked to theorize from the study, an exercise I engaged in twice, generating two different readings of my case that I used to build arguments in chapters 6 and 7 of this study, and generating a chapter for publication (O'Donnell 2013).
2. I crafted an abstract for submission to the EGOS 2011 Colloquium, subtheme "Art, Design and Organization." The abstract was accepted, and I developed a full paper engaging a slice of case data that provided unique examples of collective leadership practices in distributed conditions, crafting arguments aimed at contributing to emerging theory on shared and dynamic leadership in teams (O'Donnell 2011). Findings generated by this analysis informed arguments in chapters 6 and 8 of this thesis.
3. I formed, along with four colleagues, an "Ethnographic Writing Group" that met approximately once a month for a year. For these sessions we prepared a 4-5 page tale from our study to read aloud. This task led me to generate a series of short "anecdotes" from fieldnotes, typically outlier examples or sub-plots to the main action. Through discussion with colleagues, we generated multiple possible readings of the material, and considered ways in which to better focus and strengthen our arguments.

Each of these assignments provided frames for exploring data and crafting analysis that lay outside the scope of my central intention, yet nonetheless led me to generate material I was able to use to build several of the main arguments in my thesis.

Plotting the Field

Writing iterations and explorations, as well as diagramming the process, were ways of plotting the field, or arranging parts into a sequence. Fieldnotes ordered data, both in their first form as hand-written notes and in their later digitized, elaborated and "cleaned-up" form. From this outline of more or less linear actions aimed at capturing the unfolding

present event, I plotted stories as a form of inquiry (Richardson 1994). I located moments of crisis, conflict, and discovery, or curious occurrences, to explore in greater detail by writing, incorporating into the writing insights generated by interviews, conversations, journal reflections and visual renderings. As I wrote, I transformed linear reports into purposefully arranged sequences and explored relationships between what participants did or said at different moments in the work. Plotting stories in this way suggested different possible ways of understanding what motivated actions, behaviors and decisions. I looked for patterns that repeated as well as examples of divergence. I also teased out sub-plots and brought them to the fore, to better understand their relationship to, or divergence from, the main event.

Prior theatre experience influenced my approach to plotting. As I reviewed fieldnotes in search of dramatic potential, I performed an analysis similar to what I performed on playscripts: I "scored" the text looking for moments when new information was introduced and by whom, when discoveries happened, and when decisions were made. I asked of each unit of time, whether an incident or a day, "What is the story?" or "What is the event?", as ethnographers might ask "What is this an example of?" I had flagged several of these moments in fieldnotes as they happened.

Two particularly powerful incidents involved reversal, or a turning point in the otherwise seemingly linear action. In *Poetics*, Aristotle defines reversal as "a change by which the action veers round to its opposite, subject always to our rule of probability or necessity" (2008:20). The unanticipated occurs. What might have once seemed improbable comes into being, and the story up to that moment will be retroactively reinterpreted on the basis of this dramatic change of course. It is a powerful dramatic moment, rich in discovery and learning. In the field, I experienced it as an "ah-ha" moment: "Ah-ha! Now I have a story to tell—and a thesis!" The first of these was the reversal of participant attitude towards the use of the click-track in the US, based on the discovery that it enabled the participants to hear one another when they previously could not, setting the course of the work on a new trajectory. The second came at Westminster Synagogue when the UK musicians refused their sole opportunity to perform seated together on the ground floor in close proximity, and instead choose to configure themselves on various levels of the staircase, from which positions their lines of sight and ability to hear one another were significantly disrupted.

Doing so, they expressed preference for the very configuration that had unsettled their colleagues in the US.

By plotting, I propose relationships between parts or actions

Plot, according to Aristotle, is a whole and self-contained structure in which the parts, or actions, are arranged in a sequence that expresses causal relationships, one part or action seeming to naturally occur after the previous, until closure is achieved (Aristotle 2008). Linearity is suggested in this arrangement of parts, but does not mean the parts are chronologically ordered. Rather, new information is introduced strategically to suggest causality, or at least a relationship between actions/events. While I initially attempted in fieldnotes and my first report of those notes to construct a description of the process as it unfolded in present time, what I actually recorded was a series of episodic, tenuously related fragments and impressions, from which I needed to reconstruct the whole when writing up notes. Reconstructing the "present" first in a linear way, ordering the events of the work process as they happened in time, was an act of plotting. By plotting fieldnotes as I did, I explored possible sets of relationships between conditions, behaviors and actions, and outcomes to myself, and eventually, after further crafting, to the reader.

I suggest such relationships in my plotting of the case study report, in Chapter 3. In this plotting, I begin by introducing the project and participants and selecting what I determined to be the key conflict: the dilemma of performing as an integrated ensemble while seated apart, as articulated by Robertson. I set up a dramatic conflict or tension between the aspiration to ensemble and the difficulty of being configured apart. Doing so, I set up certain expectations of what is to come, and what the I and the reader should look for in the data, including what new information we will consider relevant to the central dilemma, and how events might unfold towards their ultimate resolution. At this point I also suggest important antecedent actions: things that have happened before the story begins, that I suggest will have relevance for how it proceeds. I construct drama by writing in this way (Richardson 1994: 526), and do so in order to both explore relationships between actions and to recreate an experience of the dramatic conflicts and reversals that I experienced in the field, to bring the reader closer to the field and allow him or her to form their own interpretations.

Some limitations to be aware of in plotting: Plotting, by design and necessity, compresses events, as do most forms of empirical writing. I do not have space in this thesis to walk you through the fieldwork in real time, nor would that approach necessarily increase your understanding of the work. I select certain events and relationships to focus our attention. Aristotle argues that a plot has a certain magnitude, ideally one which "can readily be held in memory" (2007: 14). This magnitude (perhaps helpfully) defines boundaries around the field and around a set of actions on which I chose to focus the study, as well as the scope of analysis, so that it can be considered in the span of a thesis with some degree of satisfaction for myself and the reader. However, by editing out mediating action between events and by presenting one action as if it immediately proceeded another, I must take care that the relationships between the parts of ensembling that I suggest is representative of patterns of actions I observed, or supported by other data sources such as interviews.

Another potential limitation, or risk with plotting, is the temptation to tell a good story, and in the process of striving to do so, getting too far away from the data. There is a temptation, for instance, to construct a resolution to the plot that satisfies our expectations of learning or change where resolution may not have been so satisfying in the field (just as any researcher may be tempted to exaggerate findings to drive home a point). To mitigate this risk, I continually revisit fieldnotes and interviews to challenge my narratives, bring divergent examples into the conversation, and regularly incorporate participant words, phrases and descriptions verbatim. A related temptation is to prefer stories in the data that are somewhat "complete" in their realization – have a beginning, middle and end, or in some way resolve. This is another instance of the importance of looking for outlier examples and bringing those into dialogue with the main plot, while not going on too many excursions that lead to dead ends.

My theatre training and experience leads me to prefer and perceive plot lines built on a sequence of actions and their consequences, through which I both generate and constrain analysis and make meaning. Linear plots were preferred by my mentors, whose taste and work tended towards naturalism (Zola 1881; Stanislavski 1924, 1936). Working on plays crafted in this tradition provided my best experiences in theatre, as a director, dramaturg, and occasional actor. The longer the sustained continuous action played out between a set of actors, while demanding an exhausting level of concentration and stamina

of them, the better the experience. Anton Chekhov, Henrik Ibsen, Tennessee Williams, Lillian Hellman, Arthur Miller, Edward Albee, and Athol Fugard are some of the playwrights who have mastered the form and give us this gift of text on which to work. The experience was always the most satisfying for actors because there was a psychological through-line, a series of discoveries, decisions, actions they could make in real time, a series of emotional shifts to make on cue, that accumulated into larger transformations of understanding and being. They were given time and richness of text and context, with which to behave as if they were in those circumstances, to live in real time, and to engage in the activity of doing real things, whether actions of the body, speech or mind (Hagen 1991, Meisner and Longwell 1987). They didn't have to conjure context out of thin air, or indicate a doing. (Pretending an activity steals energy whereas performing an activity generates it.)

As for the audience's experience: watch the film version of *Who's Afraid of Virginia Woolf*? (Albee 1962), the one with Elizabeth Taylor and Richard Burton (Nichols 1966), and feel what happens to you. 131 minutes of unrelenting action. We're not talking *Die Hard* action—that's physical action. This is 131 minutes of primarily *verbal* action, performing the hard work of navigating the relationship of marriage. People transform through talk. This sustained psychological action, with its plot cycle of receiving new information, deliberating, deciding, acting, suffering consequences, and taking new action, offers the opportunity to work out our humanity by testing out actions and experiencing their consequences. Our actions have effects, both of the immediate and long-term kind, which can't always be anticipated, but need to be understood if we are to act with intention to bring about change. Cause and effect in dramatic structure is not an expression of positivist causality: if A then B. If A then B, *in these circumstances.* A doesn't inevitably lead to B, because A and B are steeped in specific context, relationship, culture, back story, character flaws and desires. A confession of infidelity in 1890s Russia has a different aspiration and consequence than a confession of infidelity in 1960s America. This example of A then B is meant to help us think about what B may result if we venture an A. We don't generalize from plays, but we are meant to understand by living through the experience *with* those on stage who suffer consequences in our place, and transfer that understanding (gained at low cost to ourselves) to our own living.

I rarely experienced such payoff with non-linear forms in theater. They could be engaging conceptually, could present opportunity for developing new physical forms of

expression, and if the language was a rich expression of a psychological progression, such as Sarah Kane's *4.48 Psychosis* (2000) or Joan MacLeod's *The Shape of a Girl* (2002), could pack a powerful emotional punch. Generally speaking, non-linear forms provide much less textual support for both production choices and actor's emotional shifts. Because of this, they require a lot more effort to make, and can appear, in the end, effortful. I expect we can look to non-linear forms for dramaturgies that will support other methodological approaches in research, and that others are doing this already, but this is not (yet) the route I've taken.

The linear and the non-linear interpretations do not exclude one another, but fruitfully co-exist as alternative and non-exclusive representations, neither of which has any privileged claims on objectivity. Within linearity is embedded a past and future, influencing events. Even in the production of plays with so-called linear plots, there are all sorts of things happening/meanings resonating concurrently, even as that plot develops towards its inevitable crisis and resolution: Sub plots provide alternative perspectives to the main action. Language expresses culture, character, desire and metaphors of experience. Two paradoxical intentions can exist in a character at once; Boal activates this through the exploration of will and counter-will duality present in characters (1992: 40-45). The physical production (sets, costumes, lights, sound) communicates its own story, making a select view of the full world present at all times, echoing suggestions of the past, repeating emotional motifs, returning us again and again to a certain memory or critical moment. Laura's glass unicorn is on display whether or not the actress portraying her is present on stage with her brother Tom, as he confronts his mother or narrates his loss (Williams 1945). I explore such co-existence by juxtaposing alternative plottings and interpretations in this thesis, generating data on difference, and bringing conflicting experiences of the work into dialogue.

Thick description as dramaturgy

I consider generating thick description in social science to be methodologically similar to performing dramaturgy in theatre. It is an interpretive act, aimed at developing a reading of unfolding action, uncovering the meaning (and multiplicity of potential meanings) behind words, actions, structures, in the flow of a story, event or discourse (Geertz 1973).

Dramaturgical analysis of performance generates understandings of the emerging structure as it relates to the possibilities posed by the text, whether it is the plot structure, or the structure of a critical moment of decision (what news was delivered, how it was heard and deliberated, what action was taken and with what intent). At the word-level, dramaturgy "determines what and if and how and why the word *means*" and "allows the word to land on its intended mark" (Lord 1997: 99). Similarly, thick description aims at "sorting out the structures of signification…and determining their social ground or import." These interpretations are, as Geertz asserts, "essentially contestable" (1973:29), but the aim is to increase our precision, even as we allow for other readings. Dramaturgy doesn't limit itself "only to what can be explained" (Preston and Coppenger 1997: 170) but aims at generating potential possibilities for interpretation and action out of the materials given in the text, and suggesting those possibilities to the director and actors, so that more rather than fewer choices are available to them as they construct their telling of the story with increasing precision.

"Destroying" the findings to restore richness

I build reversal into my own process of understanding by first constructing a plot ordered by the sequence of events as they unfolded as if playing the data "in time", and then disrupting these findings by playing "in relation to time," as the musicians do, to generate variation in findings. I use two methods of ensembling, openness to uncertainty and reconceiving, as frames for understanding how these musicians worked on the problem of ensemble in stretched conditions and made unanticipated (non-linear) leaps in their efforts. Reconceiving happens when "performers generate a new sequence of rehearsal events from holistically combining the last rehearsed sequence with new information, ideas and materials" (Austin 2000: 10). Doing so, they "make new, unpredictable ideas" (Austin and Devin 2003: 169). The performers' aspiration is to create an outcome from this process that is larger than the sum of contributions and more than any one member could have anticipated. This practice benefits when divergent or seemingly incompatible ideas are brought into conversation with one another, destabilizing processes that might otherwise reach closure too soon (Austin and Hjorth 2012). I review moments in which participants hit a "dead-end" in their problem solving process, and explore how new, unpredictable ideas emerge with seeming spontaneity, as members reframe constraints. In these

moments, they open escape-hatches from their current work process trajectory, and set off in unexpected directions, at times in direct opposition to the direction they had previously thought likely. Similarly, I look for the ways in which participants delay decisions and evaluations, to resist compromising too soon, and invite uncertainty into the process. I carry out these analyses as a way to restore richness to the data (Weick 2007), and open up possibilities for more ideas about ensemble to emerge (Deetz 1996).

In this section I reviewed my methods for analysis, focusing primarily on writing, or plotting, as a method of inquiry (Richardson 1994), and reflected on the influence my prior experience in theatre had on my methods. By plotting the field in diagrams and in construction of stories including the case study itself, I propose relationships between conditions, beliefs, and responses, methods or behaviors. This is one way I have attempted to understand the decisions the musicians made, and the ways in which their choices impacted outcomes. I did this by paying attention to the ways in which participants' behaviors and beliefs evolved, expressing their anticipation that certain outcomes would result should they chose to engage in certain actions. I attempted to capture their efforts at addressing the difficulty of increased constraints in the iterative diagrams I created. I suggest all of this to the reader as one way of understanding. Then I explore the reversals in plot using a different construction, "reconceiving," to understand how the musicians made unanticipated leaps in their work, veering around to the opposite of what had preceded and what was expected. I suggest this as one way in which I "destroy" the findings to generate alternative readings, explore outlier examples, and restore richness to data in order to increase our wisdom (Weick 2007). Meanwhile, my investigation, thick descriptions, and plotting efforts all aspire to help us increase the precision with which we study this phenomenon.

DEMONSTRATING VALIDITY

I hope in this chapter I have successfully presented a defensible set of decisions regarding my research design and methods for generating and analyzing data (Whittemore et al 2001, Lincoln and Guba 1985), by describing my arguments for doing what I did, and reflecting on the factors that influenced the study design—including the research problem and question

formation; my prior research, professional experience, and personal interests; the research constraints including the constraints of my own capabilities—as well as the limitations of this approach. In this section I review those considerations I made and activities I performed in order to demonstrate validity to the reader.

During fieldwork, I regularly reflected on my role in forming interpretations in both fieldnotes and in a field journal, and report some examples of such reflection in this chapter, such as the influence my prior theatre experience had on how I recognized reversals and constructed plot. I reflect on my biases, aspirations, expectations and when they were disappointed or realized, and report on them in this chapter and others in order to "unmask" political or ideological agendas hidden in my writing (Richardson 1994: 523). My 189 pages of fieldnotes and multiple objects produced for analysis, I hope, sufficiently attest to my "prolonged engagement" and "persistent observation" in the field (Whittemore et al 2001: 533). I've transcribed interviews and used informant language as much as possible in my fieldnotes, analysis, and to support argumentation and increase credibility. I compare their descriptions of ensemble to reports in literature from other expert quartet musicians, and to my own experience of ensemble.

While I don't claim infallibility, I do offer my experience, my 10,000 hours of time spent in rehearsals either as director or dramaturg exercising empathic observation and collaborating with actors to craft intentions and actions and the relationships between these, as evidence of a degree of expertise in reading the expression of intention in actions. I built series of production choices and routinely gave feedback to collaborators on the basis of these readings. My reading expertise extends to include unspoken intentions behind actions that are interrupted or never performed. As a director, I considered as one of my most important responsibilities to the group the task of recognizing the blocked impulse, the thought that struck an actor but was for some reason edited before it could be realized, or muted into something more palatable, less risky or shocking. At these moments, as appropriate, I paused rehearsal, called out the edited impulse, gave the actor public permission to allow it to become part of our material, as these were more often than not valuable contributions, that introduced ideas beyond what we might consciously plan or conjure, inevitably opening our work to other new possibilities. On this basis, I consider myself qualified to offer interpretations of unspoken intentions in this text, but do my best

to call those out, so that the reader is invited to choose whether or not they are willing to go along with my reading, or simultaneously speculate alternative readings.

I engaged multiple methods of generating data to achieve depth in my investigation, and to establish warranted assertability (Forbes et al 1999). In analysis, I pay attention in my data generation and analysis to voices of dissent and disagreement, as well as those voices that represent patterns of agreement and shared objectives. I make comparisons across subunits of analysis embedded in the larger case. I searched for negative instances that contradict prior observation or understanding (Lincoln and Guba 1985), and I present and discuss these contradictions in this thesis. One example was suggested in the opening excerpt from fieldnotes: Jonathan's perception of the relationship between dominant leadership and ensemble is inconsistent with views expressed by his colleagues. I incorporate this data, along with several other examples of difference, into my discussion both of ensemble, in Chapter 5, and of leadership in Chapter 8. I recognize different conceptions of ensemble in this project as both four ensembles and as one ensemble, and use that seemingly conflicting evidence to build an argument for conceiving of ensemble as the realization of both four and one (Chapter 8).

I've relied on others to increase my credibility. I tested my interpretations and theories in the field with informants, checking my observations and constructing understanding together through conversations. I've presented and discussed my analysis with colleagues through public research presentations and writing collaborations, to test arguments. While I haven't yet been able to demonstrate transferability by initiating a second case study, I provide rich descriptions and data objects to enable the reader to imagine opportunities for transferability (Lincoln and Guba 1985), as well as evidence that prior research has argued for transferability and arguments for why I believe these findings will be similarly fruitful.

LIMITS TO THE STUDY DESIGN AND ANALYSIS

As with any study design, my approach has limits. There were certain constraints in which I performed this work, including time, access to data, and personal capabilities, which I navigated as best I could, for better or worse. I made choices to generate some kinds of data and not others, and to perform some kinds of analysis and not others. Decisions I made

along the way rendered some methods and arguments possible and others outside the scope of supportability. I have already discussed some ways in which I might have studied differently in this chapter. In this section, I recognize a modest few of these other limitations.

My rudimentary musical knowledge was one limitation. Many sociologists, musicologists and ethno-musicologists who study musicians benefit from their own expertise as amateur or professional musicians (i.e. Brinner 1995; Faulkner 1971; Faulkner and Becker 2009; Sawyer 2003, 2007). While I have suggested my professional theatre experience provides me with a unique entre into the material, my observation and analysis are limited by a lack of experience playing a string instrument or performing in a musical ensemble. I can't read a score of this complexity, or understand the technical requirements of the score or of being a string player outside of asking informants. I could have invested time studying the score and the formal requirements of string playing, but I chose to pay attention to other features of the process. A possible benefit of my not being a trained musician was I experienced both a degree of familiarity with their work and work culture as a fellow performing artist, and a degree of "otherness", sensitizing me to the differences in their work requirements, behaviors and culture. I was able to benefit from viewing similarity and difference. But, given a choice, I would have welcomed more expertise in this area to assist in my understanding of their work and work constraints.

Because fieldwork began before much theoretical or other preparatory work could be done. This was both a blessing and a limitation. My observations are informed by some theory, but not tightly constrained by it. Had I traveled too far down a road of pre-determining what to look for and how to define variables to study, I would have further limited what I could observe and restricted later flexibility in study design. On the other hand, data generation and later analysis might have been focused productively if guided more explicitly by targeted theoretical context. The experimental and emergent nature of my methods, my efforts at times to see as much as possible, meant that I was not always consistent or highly structured in how I gathered data. Readers could view the shifting use of questionnaires to gather quantitative then qualitative data as a failure in the study design. Alternately, it could have been a failure in judgment to proceed with that method for generating quantitative data when the musicians did not consider it meaningful.

A shortcoming that troubles me most is that I sit on a wealth of video data that has not been thoroughly transcribed and analyzed. I set out at the start of my PhD study with great ambitions for what I might accomplish in three years' time, and a fair bit of naiveté regarding my ability to analyze 100 hours of videotape within the scope of the project. I quickly discovered that the quantity of fieldnotes and interview transcripts I had generated were enough to keep me busily engaged. While I reviewed some video to either spot-check fieldnotes or to revisit moments I captured on videotape while I was located elsewhere,[40] I would have preferred to have spent more time re-viewing events and to have used more examples from video in my analysis, to uncover richness I had missed in my initial field experience. While there is some lost opportunity in this, I mitigate the impact by considering that many researchers would perform the fieldwork I have done without the additional collection of video data, and that my study was not designed to sustain micro-level examination or quantitative assessment of details that cognitive scientists or those focused on isolated features of the work, like modes of communication and their frequency (e.g., Seddon and Biasutti 2009), would do. As final comfort, the video is there for me to revisit in future work that will hopefully be enriched by the analysis and critique of the first phase of work that makes up this thesis.

As a final mention, I had hoped to explore transferability of findings in at least one other case of creative collaboration in stretched conditions, even if my attempt would have been preliminary, to strengthen my contribution and get a start on Stage Four of the study. In this effort I also fell short on time and capacity. I focus instead on presenting my agenda for future research in the final chapter of this thesis.

[40] A prime example of this is video of an intimate conversation between Paul Robertson and Sophie Langdon, a renowned guest violinist who joined rehearsal one afternoon to prepare as an understudy for Robertson, should he be unable to perform given his health. Robertson spent the majority of the time talking to Langdon about the work as they rehearsed, to bring her up to speed on their work, making much of the work explicit to me. I left the camera running unobtrusively on them, while I sat on the other side of the room out of range. I make use of this data in Chapter 7.

Chapter 5. ENSEMBLE

As a musician, I couldn't give a toss about 'Who is this for?' It's for me…I did it because I was so intensely in love with the intimacy, the intensity and the beauty of the relationship that could be found without words in the group of musicians…

… In music the most perfect platonic family is the string quartet. That's why it was created…in order to achieve a kind of relationship of excellence, of beauty, that isn't really achievable in my belief in any other music or any other art form…It is the music of the dynamic of the family.

- Paul Robertson, speaking to a group of students
at Harvard Business School (Robertson 2007)

The kinds of special teams addressed in this study engage in an extreme form of collaboration that creates unity, novelty, excellence, beauty, and play: they *ensemble*. In this chapter, I consider *ensemble* in both its noun and verb form: as an event or quality, and as the activity of calling it into being. I look at ensemble, and at the particular methods special groups employ when ensembling, for several reasons. In the introduction to this thesis, I argued the need for more precise descriptions of differentiated collaborative processes. The unique resources available for this study give me the opportunity to establish an "extreme" form of collaboration, which we may discover defines one end of an emerging spectrum that differentiates the ways in which groups work together, or which may become considered one extreme form among, but importantly different from, others. I develop a construct I call "ensemble", as well as a construct of "ensembling", because these terms are already being suggested in theory to describe a distinct form of collaboration, and they are in want of further investigation. I elaborate the theoretical framework of *ensembling* proposed in Chapter 2 in order to develop this differentiated understanding. I report new descriptions of ensemble as it occurs in natural conditions, and some unusual strategies for ensembling that our expert informants employ. These include practicing extreme forms of preparation, internalizing a shared sense of the pulse of the work, exercising dual attention, sustaining a delicate balance of collective leadership, opening the process to the emergence of consent, electing to work beyond the edge of their known capabilities, and engaging strategies for "upping" the intensity of interaction between group members, such as "destroying" the work, injecting disruptive variation, and living with relational conflict. New data builds on

and addresses gaps in current theory, enabling me to further develop our understanding of ensemble and ensembling, before I investigate this phenomenon in stretched conditions.

I start with a discussion of ensemble as an emergent quality of the work. First I briefly review ways in which other researchers and practitioners have described the event of peak performance in groups. Then I look at how string quartet informants recognize and experience peak performance in their practice to establish what they, and I, mean by *ensemble* as a particular type and quality of peak performance experience. To do this, I collected these descriptions, offered in informants' own idiosyncratic terms, and organized them into categories to explore the different facets of ensemble. I synthesized these categories into a definition of ensemble, which I propose as a tentative theoretical construct (Edmondson 1999, Edmondson and McManus 2007). This construct is intended to be specific to the work of string quartets until its transferability can be explored in other contexts; I develop it for use and further development in analysis of ensemble in stretched conditions. By understanding what these musicians mean by ensemble, we are better able to discern their professional standards and expectations, how they conjure ensemble in virtual form, how that informs their actions and behaviors, and how they recognize its emergence. We also, naturally, enrich our own emerging theoretical understanding of ensemble.

Building on the theoretical framework of ensembling I suggested in Chapter 2, I then discuss how new evidence supports and elaborates on the conditions and methods that increase the likelihood of ensemble, according to informants. I engage new data in the form of observation and informant reports of the parts of ensembling as it occurs naturally. Since the theoretical concepts were largely developed in empirical settings similar to the current research setting (that of performing arts ensembles; see Austin and Devin 2003, Austin and O'Donnell 2007, O'Donnell and Devin 2012), I generally expect more "fit" than disagreement. At the same time, I will expose these expectations to variation, divergence and new insights as well as to supporting examples, in order to enrich our understanding of the phenomenon. I suggest a construct of ensembling, and modification to the construct of ensemble, and arrive at the end of this chapter at a more complete suggested framework. This framework suggests possible relationships between work conditions, methods, and the potential for ensemble to emerge, as well as indicators by which informants recognize its

emergence, as one way to understand how expert groups organize their work. I conclude this chapter by describing how we will explore and refine this construct and framework further in analysis of the primary case study, in Chapters 6 through 8 of this thesis.

While the primary strategy for investigating the research question "How do work groups ensemble?" is to study it in stretched conditions, I had already, with colleagues, conducted some preliminary research on ensemble when I started this more focused inquiry, and many of our findings had yet to be accounted for in theory. In the course of fieldwork, I also learned much from informants about how they "usually" worked as groups of four, in their natural conditions. Given that this knowledge about the way ensembling is performed in natural conditions informed the way in which I studied ensemble in stretched conditions, I position this analysis and discussion ahead of analysis of the primary case. Many of these findings are challenged by work in stretched conditions. Also, I endeavor in analysis of the *Towards Silence* case to understand why the informants, string quartet musicians required to perform as an integrated ensemble while seated apart, would think that working in distributed conditions presents a particular problem for them. It might even be, as project leader Paul Robertson suggested, "antithetical to everything" these musicians believe in and practice. I aim to understand what is at stake, as participants confront the challenge of learning how (or, whether or not) ensemble will be possible in these new conditions. The theoretical framework, supported and elaborated with this new data, synthesizes what we can know about ensembling in natural conditions before we stretch it. Analysis of the primary case will in turn provide us with the opportunity to explore ensemble in stretched conditions, to learn how stretched conditions interact with the methods, potentially giving us an even richer and multifaceted understanding of ensemble and ensembling to engage with in future research.

ENSEMBLE: How informants experience and recognize it

> "[It is an] extraordinary feeling [for] four people who've gotten to know each other so well to give up something of themselves into the middle while regaining some control. You can sense you are at the edge of falling in…It's like a spectacular trapeze artist that somehow gets away with it each time.

- Paul Robertson, First Violin, Medici String Quartet (Pidgeon 2001: Track 6)

> I don't know if I can describe it, but I know it when I feel it. Just one night, everybody can feel what each other is thinking and everything. You breathe together, you swell together, you just do everything together, and a different aura comes over the room.

- Melba Liston, Jazz musician, in Berliner (1994: 392)

Researchers and practitioners in the field of performing arts, or those studying live performing teams, have described variations of a peak performance experience, using terms like "jamming" (Kao 1996), "striking a groove" (Berliner 1994), and "finding the zone" (Seham 2001). Seham, for instance, describes this peak experience as "a state of unselfconscious awareness in which every individual action seems to be the right one and the group works with apparent perfect synchronicity" (Seham, 2001: 64). Over time, groups who "groove" together experience increasing emotional empathy and intimacy between members. Boundaries between themselves and others relax, and they frequently perform beyond their known capabilities (Barrett 1998). Performers compare the experience to ecstasy and orgasm, and use metaphors such as being in love and riding a perfect wave (Berliner 1994).

Writing about the phenomenon of group creativity in improvisational theatre and jazz, Sawyer (2003) calls this peak performance state "group flow." He differentiates his concept from the psychological state of flow experienced by individuals (Csikszentmihalyi 1990), describing it instead as an emergent "property of the entire group as a collective unit" (2003: Chapter 2). Members of such groups reportedly "become part of the form" and "become more than yourself"; they become, as a collective, more than the sum of their parts (Sawyer 2003: Chapter 1; Berliner 1994). In group flow, group members are so attuned to one another as to experience an almost "telepathic" receptivity (Berliner 1994: 392); they "feel as if they are able to anticipate what their fellow performers will do before they do it" (Sawyer 2003: Chapter 2). This capability enables team members to sense when another member is about to make a mistake *before it occurs*, and even if that person recovers and avoids it (Peat 2000). This kind of peak performance state is difficult to predict and doesn't

always emerge. When it does emerge, it is often attributed a magical or spiritual quality (Berliner, 1994: 388, cited in Sawyer 2003: Chapter 2; Seham, 2001: 64)—in Liston's words above, the "different aura" that enters the room.

Ensemble, I suggest, describes a variation of the peak performance experience, with subtle nuances of difference that matter, not because I aim to revise our current understanding of peak performance, but because I want to understand what these musicians, our informants, mean by ensemble. I want to learn how they recognize and experience the phenomenon, and what properties of the phenomenon matter to them. Doing so, we might learn something new about peak performance experiences, but more important to this study, we will learn how these musicians envision ensemble, the ideal experience they aspire to achieve by their methods (methods we are very interested in understanding better), and how they evaluate their progress and recognize success. I use the term *ensemble* for several reasons: It is the term more frequently used by informants than others[41], the term frequently used in the theatre groups our research team has participated in and studied, the term commonly used in studies of classical music and scripted theater performance[42], and a term not excluded from use in the contexts described above. In other words, it is both the most accurate term given this research context, and general to studies of live performing teams.

In the following section, I group informant descriptions of ensemble by themes or properties that emerged in analysis. This discussion includes, as primary source material, interviews with and observation of the work of seven string quartets in the *Towards Silence* project; prior interviews with *Towards Silence* project leader Paul Robertson (O'Donnell 2006); and fieldnotes collected while observing Robertson give presentations (i.e. Robertson 2007) and coach a vocal ensemble at the Center for Art and Leadership, Copenhagen Business School (Robertson 2005). In several instances, I find it useful to elaborate on informant descriptions by drawing on the reports of other expert string

[41] No case informants used the words "jamming" or "groove" during fieldwork; one informant, a guest violinist, described being "in the zone." "Flow" was used in one conversation. The word "play," as a quality of interaction, was used frequently, though less often than "ensemble." I will address the concept of play later in the chapter.
[42] The meaning of the word ensemble varies in use in these fields, from simply serving as a synonym for "quartet," "cast" or "group", to describing technical achievement in work as a group (i.e. coordination), to describing emergent properties of the process, such as those I report in this section.

quartet musicians: the Guarneri String Quartet, as interviewed by Blum (1986), and autobiographically reported by Guarneri's first violinist Arnold Steinhardt (1998), and The Lindsays, interviewed by Moritz (2005). In several instances during analysis, it became clear that informants shared some common language with these other quartet musicians, for instance, in their description of a "fifth body." At the end of this section, I synthesize what we learn from these descriptions of the different ways informants sense ensemble, and propose a definition of ensemble that will help me to build, later in this chapter, a construct of ensembl*ing*.

Ensemble as a (Precisely Coordinated) Unit

Robertson recognized ensemble in the way the Finzi Quartet musicians reacted during a difficult moment in pre-rehearsals of *Towards Silence*. He described his observation to me:

> [O]n one of the play-thrus we finished with, the leader [first violinist Sarah Wolstenholme] slightly got into a panic about one of the leads—which is a big lead, because it's a total ensemble lead —and she jumped the gun. I don't suppose you noticed all this, but the others quickly kind of glanced to her, and she quickly sort of acknowledged in a glance that it was her mistake. And they sort of 'zhe-zhe-zhe' [*He gestures with his hands to illustrate a coming together from all directions, his eyes brightening.*], and they were there into kind of like a coherent whole within about two beats. And that's fine, that's how it should be…they just kind of immediately locked in. And, without any sort of formality, I noticed that all their bowing styles, speed of bow, weight of bow, all the stuff we haven't even just touched on yet [in these rehearsals]…they're a unit."

Robertson was able to read these subtle signs, which were, as he rightly noted, imperceptible to a musically non-expert observer like myself, and understand the indication. In his description, the Finzi Quartet demonstrated ensemble by performing stylistically as a unit, and by instantaneously (in the space of two beats) reacting to a mistake as a coordinated unit, with, as he described it, seeming grace and unity of form.

The word ensemble, when used to describe technical achievement in musical practice, refers to the precision and unity with which a group of musicians perform together. While at other times musicians use "ensemble" to express the pinnacle experience of togetherness (as one informant calls it, the "Really True Connection"), when used technically in this way, it is, according to Steinhardt, "only the first step" to quartet playing (Blum 1986: 9). Steinhardt's colleague, cellist David Soyer, clarifies that this is no small achievement, as the Guarneri Quartet devoted "a lot of effort" in the beginning of their career together to ensure they obtained "pinpoint accuracy" in their ensemble playing (Ibid: 9). Through a process of trial-and-error, they "developed ways of achieving good ensemble without discussing it, or sometimes even rehearsing it" (Ibid: 9-10). Then, through a "rather complex system of 'leads'," which Blum describes as almost imperceptible "signals given by any one of [the musicians] at critical junctures during the course of a movement," the Guarneris were able to "maintain a firm grip on ensemble" with little explicit effort (Ibid: 10), freeing them to attend to other priorities. The Finzi's recovery in rehearsal is an example of maintaining a firm grip on ensemble.

"Complex system of leads", "pinpoint accuracy," and "firm grip" are phrases we might expect to be evidence of work that is effortful, demands full attention, and is highly controlled. In the beginnings of the Guarneri Quartet, it was effortful and demanded explicit attention. Yet if such effort and control were always required to maintain ensemble, it would be difficult for the Finzi Quartet to respond to an unanticipated mistake as they do, spontaneously and almost instantaneously, with apparent unity and ease (their effort is imperceptible to the audience). Later in this chapter, I will give examples of how quartets move from effort to ease in performing the technical demands of ensemble. For now, I include in our understanding of ensemble the experience of precisely coordinated action, the maintenance of which requires ease and grace to remain agile and imperceptible. These techniques are mastered and performed in such a way as to allow members freedom to do other things. Precise coordination is a critical feature of ensemble, but not the end goal.

Ensemble as Feeling/Sensing/Thinking Together

The unity embodied in the Finzi's quick reaction might also be an example of ensemble as "feeling", "sensing" and "thinking" together *at the same time* to, in that case, recover quickly. Robertson describes his ideal experience of ensemble as a group that plays in such a way that "the level of attention and aspiration and *in*tention is shared" (O'Donnell 2005), suggesting ensembles collectively match and aim their energy. Guarneri second violin John Dalley acknowledges occasions in which he and his colleagues "really do seem to feel and breathe as one player" (Blum 1986: 168). Soyer links feeling and thinking in an example of ensemble: "Our way of ensemble playing is not that someone leads and everyone else just follows. The actual lead may be in the first or second fiddle, but, in fact, everyone feels it at the same time; everyone is thinking towards a central point"… (Blum 1986: 14-15). When ensemble emerges, Dalley reports, the quartet musicians share "the same sense of something special taking place" (Blum 1986: 169). These groups of four, in moments, think together, feel together, sense together, breathe together, and experience together the almost 'telepathic' connection.

When asked by me to describe an experience of ensemble, cellist Jonathan Bloxham[43] recalled a brief moment in which a student orchestra of approximately 30 members felt "exactly the same thing at exactly the same time." He attributed the emergence of ensemble to these musicians living together as students for "two or three" years, sharing amongst every member a "passion and love," and spending hours of "gruesome" rehearsal.

> And then there's so much want, and passion to get to the…you know, the *ideal* version, that it—You know, even if you just miss it by a little bit, it still has the experience. And then one experience we actually hit it. It was about two bars in the middle of one movement…where one moment just worked. And the whole orchestra afterwards came away and could identify those two bars where it all worked. We all felt that…and that's the only time where I heard all 30 or 40 people all feeling

[43] Jonathan Bloxham was invited by Violinist Simon Hewitt Jones, with whom he had previously collaborated, to perform as a member of the fourth quartet in the *Towards Silence* project in the UK. They called themselves the "Court Lane Ensemble" for the purpose of the project, but were not a permanent quartet.

> exactly the same thing at exactly the same time. It was about two bars in the middle of one movement…where one moment just worked. And the whole orchestra…[felt] exactly the same thing at exactly the same time.

Bloxham's description of the collective want and passion to "get to the…ideal version" nicely reiterates Robertson's experience of shared aspiration and intention that drives the group. While his example underscores the ephemeral quality of the phenomenon, it also testifies to the value musicians ascribe to "hitting it." They are willing to spend "gruesome" hours, years even, for two bars of ecstasy.

Ensemble as Leading Together

Unique in Bloxham's example, aside from the larger number of group members able to "feel together," is an organizational difference linked to that number. Although he attributes his experience of ensemble in the orchestra to group tenure, shared want and passion, and exhaustive preparation, an orchestra, unlike a string quartet, organizes under the direction of a conductor. In other conversations we shared, Bloxham differed from many of his *Towards Silence* colleagues in his conviction that strong leadership was a good route to ensemble, when working in a larger group with limited time, at times drawing distasteful facial expressions from his quartet mates. His view stands in stark contrast to Soyer's description above, in which the members of the group initiate play together, and ensemble is a leaderless or a collectively lead experience in which everyone thinks to a central point. Guarneri violist Michael Tree says that the idea of one dominant "leader" is "antithetical to our way of thinking" (Blum 1986: 8). He adds: "I feel that a group in which one person determines how the others should play doesn't sound the same as one in which every member is involved in the leadership and communicates musically on an equal basis" (Ibid: 8). Bloxham's example is remarkable in that it indicates ensemble as "feeling together" is possible in a large group, though we are left with some question of how dependent that achievement is on a form of leadership that differs from the experience of ensemble in a string quartet. Both Bloxham and Soyer (in explaining how Guarneri learned to maintain precise coordination) suggest ensemble depends on the condition of having time together, measured in years, as a group.

More often, I heard informant reports similar to those of Tree and Soyer, of ensemble as an experience in which everyone engages in leadership. Cathy Thompson, acting first violin for the Medici String Quartet in New York, joyfully recognized the emergence of ensemble in an early rehearsal of *Towards Silence* by reporting to the group of 16 musicians that she experienced "a sense of us all leading and not leading." After being coached by Robertson to experiment with different strategies by which each member of the vocal quartet could take leadership, one singer described the change in his experience of the group: "[I] feel the leadership around me growing." At which point Robertson replied: "At the moment I feel you have achieved the beginnings of an ensemble." In these observations, Thompson and Robertson locate the seed of ensemble in shared or collective leadership. Like Tree, Robertson considers dominant leadership antithetical to ensemble: "what it feels like to me are those touches of peak experience, or of real potency. It's only ever really most pure when it's not identified with some controlling ego" (Pidgeon 2001: Track 5). Ivo Jan van der Werff, Medici's viola player, adds support to this argument:

> The essence of quartet playing and the dichotomy, is that you have four individuals playing individual lines, and each could be played as a solo. It might be an accompanying passage, but it has its own shape, its own direction. The dichotomy is you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals. (Pidgeon 2001: Track 1)

Robertson and van der Werff agree that collective engagement in leadership is critical to the peak experience of ensemble and the creation of a unified whole. Their colleague, Thompson, evaluates ensemble based on sensing this engagement.

These insights, considered with the Guarneri Quartet example that located the beginnings of ensemble in playing accurately in time together, a feat that quartet later achieved with less explicit effort through a complex system of leads, suggests a refinement to our earlier analysis: The seed of ensemble is recognized in the performance of tightly coordinated, unified action involving collective engagement in leadership. This performance becomes so highly attuned over time that members feel and think together toward a greater purpose.

Ensemble as Synchronized Individuality

Thinking together is importantly different from thinking *alike*. Ensemble does not require the latter; rather, informants suggest it requires the opposite. In an introduction to an account of The Lindsays, Vladimir Mendelssohn, Artistic Director Elect of the Kuhmo Festival, calls the string quartet ensemble "the most sublime form of democratic anarchy you can imagine" (Moritz 2005). First violinist Simon Hewitt Jones used the word "anarchy" as well, rejecting his colleague's suggested term "equalness," for describing the musicians engagement in leadership in early rehearsals of *Towards Silence.* String quartet musicians, as van der Werff above, repeatedly emphasize the importance of developing distinct musical personalities as individuals, even as they engage in creating an integrated sound together. Though a seeming paradox given the unity called for and experienced in string quartet playing, the form of quartet playing asks that four distinct voices engage in and maintain "true dialogue" (Blum 1986: 4). Steinhardt describes the value in individual distinctness:

> The more developed our musical personalities are, the less likely we are to think alike…one would think that the first thing a quartet must establish is a uniform approach to vibrato. Yet each of our vibratos retains a distinctly personal quality; of course, we all place a high premium on *variety* of vibrato in its artistic application. (Blum 1986: 3)

The Lindsays cellist Bernard Gregor-Smith calls this "synchronized individuality," through which the quartet becomes able to express multiple ideas concurrently, producing rich variety and depth (Moritz 2005). Jazz musician Curtis Fuller experiences the ensemble when conversing in this way: "When [good conversation is] really happening in a band, the cohesiveness is unbelievable. Those are the special, cherished moments. When those special moments occur, to me, it's like ecstasy. It's like a beautiful thing." (Berliner 1994: 389) Cohesiveness, a unified whole, contains all the richness of individual personality in this experience of ensemble. As Robertson says, individuals "give up something of themselves into the middle while regaining some control." Doing so, they maintain, like a trapeze artist

in mid-air, the delicate balance of being four voices as well as one.

Ensemble as a Fifth Body

Van der Werff's dichotomy of four individual lines and the unified whole that emerges describes a transformation of four parts into one. Rather than four parts, or 1+1+1+1 solo lines which simply coexist as four equal lines, an *ensemble* of 1+1+1+1 becomes experienced as, depending on informant idiosyncracies, either *one* or *five*. Van der Werff suggests one. Conversation produces "a unity of conception," to which Blum attributes a spiritual quality—the force directing and shaping the collective action (1986:3). That unity of conception is sometimes experienced as another, guiding presence in the room, or as the music itself seeming "to take over" (Blum 1986: 169). Allowing the music or emergent whole to take over involves the quality of release. Amy Schroeder, first violin of the Attacca Quartet in the US suggested efficacy in performance would come from letting go and letting the sound produced by the whole group "take over". Her colleague Keiko Tokunaga added: "if you are very relaxed, and if you're part of the flow, I think the music will speak by itself." The Lindsays first violin Peter Cropper counts that guiding force as a fifth voice in the conversation: "With the quartet, what you have is the blend of four instruments the same, but with four different people. And what you have is actually five instruments: four individuals, *and* the quartet as an instrument" (Moritz 2005). Bloxham described ensemble to me as a "fifth body" in a quartet that emerges when the group is "contributing to a greater good." Individual initiative, or "anarchy," gives way to a shared sense of a commanding form. Bloxham elaborated: "Ultimately a good ensemble is a different body. You have four people playing together, for the fifth body of the quartet. So, it's for the greater good." Blum uses the phrase "fifth presence" to describe this phenomenon, and similarly identifies this as the moment in which "the whole becomes more than the sum of the parts" (1986: 186).

Ensemble as Communion

Medici's second violinist Cathy Thompson expressed her ambition for the *Towards Silence* project as recreating a "Really True Connection" with her Medici colleagues, and perhaps

the larger group. Thompson describes how thinking together, the quartet can access a greater intimacy, something like communion.

> Occasionally in the past when we would do a concert, you know, we would get the '"Really True Connection." And when you get it, only the quartet knows…[T]here's a certain something that happens, and it's almost like—you can't really describe it. I suppose it's just an inner communication where we just—we're all thinking the same, and we're all [*She gestures, her hands moving inwards towards a center*], you know.

She describes how she experiences a progression towards this intimacy: "You know, it's not just about the playing. It's about the personalities and the jokes, the in-jokes, the memories, what it triggers, and then the connection, the communication." Robertson said that he was intimate enough with his colleagues to know "even before they came in the door what state of mind they were in" (Austin and O'Donnell 2007: 8) He described the level of intimacy found in a string quartet as the highest possible form of human relationship, and the route to achieving excellence in the music. Reflecting on his decision to dedicate his career to string quartet playing, Robertson relates his motivation to connection between members: "I did it because I was so intensely in love with the intimacy, the intensity and the beauty of the relationship that could be found without words in the group of musicians," likening that relationship to the intense dynamic of the family (Robertson 2007). Robertson suggests that the intimate connection enables "opening, and the release of boundaries" which then makes it possible for the group "to achieve a kind of relationship of excellence, of beauty, that isn't really achievable in my belief in any other music or any other art form" (Robertson 2007).

Ensemble as Shared Intention

Bound up with the sense of ensemble as communion is the shared intention to commune. Discussing ensemble with the newly forming Court Lane Quartet[44] one evening after rehearsals, Robertson shared his belief that a quartet is not four individuals with the same purpose, but one group with one purpose: "Your purpose *is* ensemble." The way in which the group becomes a group entity, achieves a state of communion or "fifth presence"

[44] This group later referred to themselves as "The Court Lane Collective."

together, is through the purpose to become so. He repeated this belief again to the vocal ensemble: "You create an environment of ensemble. Your purpose is ensemble; it's not different from ensemble." The primary shared intention of the group that realizes ensemble is the realization of ensemble. Steinhardt offers a variation on this,

> The Guarneri String Quartet…had come together with a goal in mind, the performance of string quartets, and reaching it depended on our being able to break through our heavily fortified attitudes in order to understand and relate to each other." (Steinhardt 1998: 125)

Guerneri members shared the aspiration of performing string quartets, work that requires the cultivation of ensemble. To do that work, as Steinhardt says, required the group to open to one another and to break down the boundaries of attitude and ego.

Arriving at a definition of Ensemble

> When a performance takes flight I feel as if all four personalities meet somewhere in the air—maybe two and a half feet above the quartet.
>
> - Arnold Steinhardt (Blum 1986:169)

The experience of ensemble, even within the narrow population of our informants and a few other expert quartet musicians, is rich and broad in imagery, sometimes paradoxical, and inclusive of both practical (precise coordination) and mystical (taking flight) features. Performers express the spiritual aspect of ensemble in metaphors, when they attain language at all. To encapsulate the experience, Robertson offered his younger colleagues this metaphor, taken from a story in the Sufi tradition: A young man lifts a beautiful flower to reveal a snake. From the descriptions above, I offer a distillation:

> *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose.*

To support this distillation, I provide **Table 5.A**, which links the features of ensemble evident in this definition to the key categories for describing how informants sense and experience ensemble.

Key categories of description	**Representative quote from string quartet informants**	**Representative quote from supporting quartet examples**	**Feature of Ensemble**
Ensemble as a (precisely coordinated) unit	Robertson: "[The Finzis] were there into kind of like a coherent whole within about two beats…they just kind of immediately locked in…they're a unit."	"[The Guarneris have] achieved [ensemble] largely by means of a fascinating and rather complex system of 'leads' – that is, signals given by any one of [them] at critical junctures during the course of a movement – a system of which the audience is virtually unaware – enabling [them] to maintain a firm grip on ensemble." (Blum 1986: 10).	Synchronized, unified action
Ensemble as feeling/sensing/ thinking together	Bloxham: "It was about two bars in the middle of one movement…where one moment just worked. And the whole orchestra…[felt] exactly the same thing at exactly the same time."	Dalley: "[We] really do seem to feel and breathe as one player" (Blum 1986: 168).	Highly attuned
Ensemble as leading together	Thompson: "I feel a sense of us all leading and not leading."	Soyer: "Our way of ensemble playing is not that someone leads and everyone else just follows. The actual lead may be in the first or second fiddle, but, in fact, everyone feels it at the same time; everyone is thinking towards a central point" (Blum 1986: 14-15);	Collectively led
Ensemble as synchronized individuality	van der Werff: "The essence of quartet playing and the dichotomy, is that you have four individuals playing individual lines, and each could be played as a solo. It might be an accompanying passage, but it has its own shape, its own direction. The dichotomy is you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals."	Gregor-Smith: …"synchronized individuality [is] where you can have your own way of playing, but it is obeying a certain stylistic and direction that you all believe the music has….[and] each of us can play to some extent like as if we are in a different dimension from each other." (Moritz 2005)	Individuals in dialogue
Ensemble as fifth body	Bloxham: "Ultimately a good ensemble is a different body. You have four people playing together, for the fifth body of the quartet. So, it's for the greater good."	Cropper: "With the quartet, what you have is the blend of four instruments the same, but with four different people. And what you have is actually five instruments: four individuals, *and* the quartet as an instrument" (Moritz 2005).	A unitary force of expression

Ensemble as communion	Thompson: "Occasionally in the past when we would do a concert, you know, we would get the ''Really True Connection.' And when you get it, only the quartet knows…[T]here's a certain something that happens, and it's almost like—you can't really describe it. I suppose it's just an inner communication where we just—we're all thinking the same, and we're all [*She gestures, her hands moving inwards towards a center*], you know."	Steinhardt: "When a performance takes flight I feel as if all four personalities meet somewhere in the air—maybe two and a half feet above the quartet." (Blum 1986:169)	Ecstatic event
Ensemble as shared intention	Robertson: "You create an environment of ensemble. Your purpose is ensemble; it's not different from ensemble."	Steinhardt: "The Guarneri String Quartet…had come together with a goal in mind, the performance of string quartets, and reaching it depended on our being able to break through our heavily fortified attitudes in order to understand and relate to each other." (Steinhardt 1998: 125)	Aspire towards a singular purpose

Table 5.A: Features of Ensemble linked to key categories of description

In suggesting a definition, I lose nuance and perhaps leave out a critical quality of the experience. For instance, the "opening" and release of boundaries that comes when a group communes in this way seems important to include, yet difficult to express with economy. In analysis of the *Towards Silence* case I will continue to work with the nuanced words of informants. We may also learn that as conditions or preferences change, different parts of the experience emerge as more important than anticipated by prior experience—perhaps trade-offs occur between the degree of precision to which the group aspires and degree of anarchy or richness of dialogue, and task constraints may at times inhibit individuality.

The actual point at which groups achieve ensemble remains illusive. Bloxham and his orchestral colleagues could agree precisely on two bars in which they shared the experience of ensemble, and Robertson could recognize a specific moment in which the Finzi Quartet demonstrated an aspect of ensemble. But in general, descriptions are subjective and give varying indications of the duration in which ensemble might be experienced. What his colleague called equalness, Hewitt Jones called anarchy. Some group members may experience the merging of four voices into one, while their colleagues simultaneously perceive a fifth voice emerging as a guide. This divergence in experience

within a group may not matter; ensemble may emerge regardless. Whether or not a musically non-expert observer (or musically expert observer, for that matter) can perceive the emergence with the same accuracy as a participant is also uncertain. We may be dependent on informant reports to "observe" ensemble. They themselves may disagree as to when exactly it emerges, or experience it for different durations. However, as long as the shared purpose *to* ensemble continues to motivate their work, we can be interested in the behaviors and methods they practice together in order to call it into being.

ENSEMBLING

Now that I've discussed how informants experience and recognize the event of ensemble, I turn my attention to understanding the processes by which they create ensemble, comparing new data to the theoretical framework suggested in Chapter 2, to enrich our understanding. If ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose, then what do these musicians do *to* ensemble—to coordinate their work precisely, to lead collectively, and to attune their interaction to the point that a unitary force of expression emerges?

Bloxham's description in which the orchestra experienced a fleeting two bars of peak experience suggests to us that groups cannot force the ecstatic moment. Sawyer (2003) likewise argues that groups (like individuals; Csikszentmihalyi 1990) cannot intentionally "flow." However, this discussion of ensemble gave us clues as to the kind of work string quartets do to increase the likelihood of the event: They spend a lot of time and effort to develop methods like Guarneri's "system of leads" for creating and sustaining precise coordination. They reject dominant leadership in favor of a collective practice. They attend to their individual development, and spend hours of time together building relationships. They set out, as Robertson says, with the purpose of ensemble.

As the theoretical framework suggests, and as further analysis of new data will demonstrate, members of groups such as string quartets deliberately engage in methods that, in their experience, can call ensemble into being. Groups perform *ensembling* in order

to achieve (they hope) ensemble. Ensembling involves the enactment of a set of interdependent methods by which groups create (or at least aspire to create) ensemble; methods by which they become capable of performing precise synchronization, collective leadership, and increasingly attuned interaction towards an emergent force of expression. Methods emerge and capabilities develop over time, as suggested by Guarneri's early ensembling efforts, through regular engagement with the difficulty of achieving and sustaining ensemble, including processes of "trial-and-error." Groups perform ensembling at an increasingly expert level. The better they perform the methods, the more likely these qualities emerge and the more likely the group can sustain them. The shared purpose of their work and height of their achievement is the experience of ensemble.

Methods for Ensembling[45]

In this section, I describe the methods our informants use to ensemble in natural conditions. I elicit these methods from both new and recent fieldwork (O'Donnell 2005, 2006; Robertson 2007; *Towards Silence* fieldwork and interview data[46]), draw supporting evidence from the reports of other string quartet musicians (Blum 1986, Steinhardt 1998, Moritz 2005; and one example from jazz, Austin and Størmer 2008), and relate findings to the theoretical framework of ensembling to suggest extension and deepen understanding. My aim is to understand what these practitioners do to move from release to collaboration-as-conversation, and to thinking, breathing and playing together as an ensemble. From fieldwork and informant descriptions of their work methods, I report nine methods for ensembling that they practice. I describe each method using examples from data.

In this analysis, I particularly look for evidence to address questions raised by the theoretical framework proposed in Chapter 2 (see **Figure 2.6**), such as the vagueness surrounding some of the methods and behaviors that summon the quality of ensemble.

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[45] In Chapter 3, I describe the work of string quartets more generally, such as how often they meet to rehearse, how they organize and manage their economy and performance schedule, how they think about and develop their career, and so on. This section focuses on methods particular to the pursuit of ensemble.

[46] When I use data from the *Towards Silence* study, I extract those descriptions relevant to the musicians' work within their own ensembles of four, in natural conditions. Often these descriptions were offered to explain difference in their experience of the *Towards Silence* project.

Much has been discussed in terms of the activities and processes that enable the qualities of release and collaboration-as-conversation to emerge; less is understood about how groups achieve ensemble and play. As far as our theoretical understanding seems to indicate so far, groups pursue ensemble by relinquishing sovereignty and strengthening relationships, and otherwise by returning to the methods that generate collaboration-as-conversation to "up the intensity" somehow. I look for examples of how group members up intensity, or otherwise work differently to summon ensemble. New examples of methods include, for instance, extreme forms of preparation, the ways in which string quartets perform collective leadership, strategies for generating instability, and some unusual methods for raising the quality of attention and attunement in the group. In some cases, a method may seemingly address a routine or foundational element of the work: for instance, playing in time. However, the way in which informants choose to address the task of playing in time reveals other aspirations that go beyond playing in time, to coordinating their work in a way that increases the likelihood that ensemble—in its multifaceted manifestations reported above—will emerge. I summarize proposed extensions to the theoretical framework, in table format, along the way.

By presenting the following methods in a numbered list, I do not mean to suggest that this is either a fixed or definitive set of methods by which ensembling is performed. Rather, these are nine examples of methods I observed or learned about while doing fieldwork, on which I now report in order to elaborate what we know so far and to help us continue our ongoing investigation. I mean to consider them alongside other methods addressed in theory, as well as to open the study to other methods, behaviors and activities relevant to processes of ensembling. While I believe it's useful to make conceptual distinctions between methods in order to develop better understanding of how work groups ensemble, I do so with the awareness that these methods are difficult (or impossible) to separate in practice, and should ultimately be considered as multiple facets of a complex process called ensembling.

Method 1: Extreme preparation

> *Well, I was a rehearsal junkie. I still am. I like to rehearse and then rehearse and then rehearse again and then maybe do a few more rehearsals, even when something was superficially ready…For the first 15 or 20 years we rehearsed every day of the year, for between four and six hours, and we would do three to four hours of practice between rehearsals [independently]…Because without that I didn't feel remotely prepared.*
>
> - Paul Robertson (O'Donnell 2006; Austin and O'Donnell 2007:6)

As the first violin of the Medici Quartet, Robertson demanded high levels of preparation for himself and the group. My *Artful Making* colleagues and I refer to this kind of preparation intensity as "extreme preparation." As Robertson describes, extreme preparation involves a heavy investment of time. Bloxham attributed his experience of ensemble in an orchestral group in large part to the "gruesome" amount of rehearsal in which they engaged together over the course of two or three years. Both Robertson and Bloxham describe rehearsals that involve work as individuals and in the larger group. One result of such work, according to Bloxham, is that "everyone knows their part impeccably, like a soloist." This knowing allows the musicians to perform difficulty with ease (O'Donnell and Devin 2012), and frees them to engage with one another, as Bloxham described, at the level of feeling the same thing at the same time (a capability they build through methods we will soon discuss).

Other subtle, but to Robertson critical, results emerge from extreme—as compared to "superficial"—preparation such as this. Robertson discussed the differences he experienced between Medicis' usual way of working and the work of a musician who joined the Quartet for a period of time later in their career:

> The then second violinist[47], who was this very brilliant, sanguine girl, who I loathed having in the group…because she had no concept or need for rehearsal. And I found

[47] Robertson is referring to Cathy Thompson, the only female musician to have served as a member of the Medici Quartet during their long career. Thompson also participated as a member of the Medici Quartet for the *Towards Silence* project. This quote is taken from an interview conducted in 2006. On the basis of their work together on the *Towards Silence* project (2009), Robertson was full of praise for her work, particularly her level of dedication to rehearsal.

> that utterly repugnant and deeply stress inducing. In fact it made me feel ill, all the time…I felt there was no integrity in it, particularly when you get to serious repertoire like Beethoven, where a great deal of what one is achieving is an extraordinary kind of—it's terrible, the language is very hard—but part of what one is seeking to achieve is the kind of gravitas of inevitability, which has a freedom in it, but it's around such an architectural form. If you don't lay down the architecture [you can't achieve the extraordinary]—We're talking extremely subtle. So, I couldn't say she'd play it the wrong speed. She'd always pick up the tempo perfectly. But her bow speed would be wrong for the tempo we were playing at, for example. It was always great but was just very slightly indicative of someone who hadn't absorbed internally the internal rhythm that was needed to construct the piece. I just couldn't do it. I could do it, but I hated it. It was like a lie.

In his description, we learn that the quality and integrity of preparation matters as well as the quantity of time dedicated to it. The second violin's attitude towards preparation separated her from the group, rather than bringing them closer to an experience of ensemble, even at the foundational level of bow speed, let alone a higher form of communion. Robertson found this approach to preparation to be in violation of his standards and ethics, calling it "utterly repugnant", "deeply stress inducing", lacking integrity, and like "a lie." We can compare this description to Robertson's recognition of ensemble in the Finzi Quartet, who demonstrated coherence at the level of their bowing speed and style, which may seem like a purely technical accomplishment (something that can be learned through hours of repetition), but which Robertson took as an indication of ensemble, particularly in the fact that the Finzis recovered from error spontaneously with precision and ease. Perfect repetition does not prepare musicians to react spontaneously to unanticipated events as a unit; other kinds of preparation are needed to create ensemble. So, what does this preparation look like?

According to informants, preparation that enables collaboration-as-conversation and potentializes ensembling hinges on establishing the "architectural form" and on internalizing the rhythm, or pulse, early in the process. Robertson described a rehearsal process by which the group first establishes an architectural form and absorbs an internal rhythm before "seeking to achieve…the kind of gravitas of inevitability, which has a freedom

in it." Robertson referred to the earliest phase of the work on the *Towards Silence* project, for instance, as "semi-pre-rehearsal", to distinguish it from later stages of rehearsal. His descriptions suggest an early emphasis in the process on mastering the formal requirements of a score—"getting a concept of what the piece is, to rehearse" as Robertson explained it—in order to build technical competence with the material through further rehearsal, and then progress to interpretive explorations. By technical competence, I mean mastering the fundamental skills needed to play the right notes at the right time and to understand and meet the unique demands required by the composition. By interpretive explorations, I mean those activities that generate new ideas in relation to the form.

To explore my hypothesis that technical tasks might be usefully distinguished from interpretive tasks in practice, I asked informants whether or not they considered parts of their process to be "technically" oriented[48], such as learning to play the notes correctly and in time, or making decisions about bow speed, and some parts to be "musically" oriented, such as tuning or intonation[49], phrasing, and other expressions of interpretation. I admit it may be misleading to conceptually separate activities that may not be separate—or perhaps *cannot* be separate—in practice. My intent with suggesting a conceptual separation was to see what learning might be generated by thinking through distinctions with informants, and to learn to what degree they considered it helpful to employ such distinctions. My interest in exploring this distinction also anticipated the possibility that working in stretched conditions might increase the amount of time required to achieve technical, or foundational, capabilities as a group, or that the nature of the kind of technical preparations needed might change to meet new conditions.

While this distinction made sense to several informants, I found them reluctant to consider the two activities as separate. Rather, they described technical and musical activities as intertwined in practice. I tried this dichotomy out on Medici guest violinist Fenella Barton, in the following conversation:

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[48] I picked up the word "technical" as a description of certain parts of the work from Robertson in an early interview, but was often the one to introduce the term into conversation with other participants.

[49] I started with the word "interpretive" to describe musical activities when conducting interviews, but quickly adopted informants' word, "musical," in its place. Informants classified tuning, or intonation, as a musical activity.

Q: I'm thinking to what degree it's possible to tease apart the activities you do in rehearsal that are kind of technical—playing in time, learning the score, learning who is leading when [*Fenella is nodding*]—and then the things which you all seem to be describing as "musical": the interpretive choices, the balance that you find between you. What's the relationship between those two kinds of activities? Is there a certain level of the technical part that you need to sort out before you can get on to the musical quality? How does that work?

Barton: Well, there are certain things [that might be "technical"], but I suppose you're forming, in your mind as well, what you're trying to achieve, what results you're trying to achieve *musically*. I mean some things like getting it together at the beginning, you're working on, on two levels, you know: the musical *and* the technical—

Q: At the same time?

Barton: --At the same time, quite often. You know, you're after a certain result. You're forming in your mind an idea of what you're after. But then, you might just reduce it entirely to something technical [in order to achieve that idea], but—[*Fenella makes a face, as if that would be a strange thing to do*.]

Q: But you have this other goal in mind?

Barton: Generally, generally you have something in mind.

According to Barton, technical activities happen in service of musical objectives, so musicians work on these two levels in tandem. Decisions about bow speed, for instance, which I initially proposed as a technical part of the work, are technical adjustments quartets make to both develop unity and ensemble, as Finzi demonstrated in rehearsals, in ways that help them to realize a musical idea. Medici's violist Ivo Jan van der Werff used bow speed as an example of the interdependent relationship between technical and interpretive activities:

> …the technical side is towards the end [i.e. the purpose] of creating the sound world. So the way we use the bow—[In rehearsal] we were talking a lot about, you know, when do we use fast bows or slow bows, or just the style of sound that we're creating. That's what enhances the music. So in a sense you have to talk about very technical things, in relationship to the sound that you're creating. So, yeah. So in a way they're just different aspects of the same thing.

His colleague, cellist Tony Lewis, agreed that the activities were inseparable:

> …if you're rehearsing in a normal way, these things would happen together. [*He interlocks his fingers.]* You wouldn't separate. Somebody might say something about the interpretation, "Yeah, yeah, yeah, try it like that." Then somebody might say something about a technical side of something. This would all happen within one rehearsal. You wouldn't [separate these things].

The fact that musicians expert at ensembling describe technical work that proceeds simultaneously and in relationship with musical work indicates an important difference in the kind of technical work they perform, perhaps a clue offered again by Robertson's criticism of his colleague's work. While she managed to pick up the tempo perfectly, she did so with the wrong bow speed. The way in which she met the technical requirements of the piece were not coherent with the group's emerging musical interpretation, and interrupted their ability to achieve coherence, and to ensemble.

Establish the architectural form

Despite the general rejection of a dichotomy between technical and musical activities, several informants indicated a progression in their work process that began with getting the music played "fundamentally right", and gradually included more free and spontaneous activities born of listening to one another, indicating that it was sometimes useful for them to employ a distinction. Just after arguing for the interlocked nature of technical and interpretive activities, Lewis admitted that "until you play it together, you can't really discuss the interpretation. Because there's nothing there to interpret." The Finzi Quartet

reportedly direct their first efforts at learning all the cues, knowing "what's what everywhere" in the score, locating what to listen for, so that they know "fundamentally what's going on." Finzi cellist Lydia Shelley described this preliminary work as "mapping it all out" in order to "have something to hold on to, mentally." Second violinist Natalie Klouda explained that having a sense of the structure of the piece "releases your ears more." Mastering the architectural form of the composition prepares the quartets to engage in the exploration of musical ideas that come from listening to the whole and to one another. Lack of architectural mastery (knowledge of the score) or technical mastery (competence in performing the work required by the score) pulls them out of that conversation. The stronger the foundational work, the freer the musicians are to "release" their ears and engage in musical activities.

In some cases, foundational work demands extra attention, making it appear more prominent in the process. For instance, when the composition is technically demanding, as was the case with the Beethoven quartets in Robertson's example, musicians need to invest more rehearsal hours in getting the fundamentals right. Another instance: if the composition is a new piece, it requires more rehearsal time getting to know the new form and understand it at an architectural level. Robertson commented on the challenge new work presents, using Tavener's *Towards Silence* as his frame of reference:

> …there's…quite a lot that you have to assimilate, because it's [written] in an alien language. It needs to be in an alien language or otherwise [the composer] wouldn't have a personal, musical voice. So the scales are different, the intervals are different, the style is very distinctive.

Familiarity with known works that had been performed by other quartets enabled musicians to enter the work with more knowledge of the architecture and likely some preliminary ideas about their objectives for interpretation. van der Werff explained: "If it was a piece we're all familiar with, we'd have an idea straight away, the sort of color and sound we want."[50] In contrast, he explained, "When it's a brand new piece, you can't have a

[50] UK quartets involved in the *Towards Silence* project also prepared Vivaldi's *Four Seasons* as the first act of their concert series. These musicians told me that the Vivaldi was "easy" to play, since it was a well-known piece of music that is routinely played by music students during their training; they all had some experience with it already.

judgment about the interpretation." To which Lewis added: "No, you have to take it back to the bare bones and start putting it all together." In the context of new work, Lewis was more ready to agree to something like a progression in the work from technical, or architectural, work to interpretive work: "Once you've got the structure, once you've got it all sorted out, then you can start talking about the 'design', if you like. But you can't talk about the design until you've got the structure," he said.

To help us understand further why Robertson considered it critical to master the architectural form of a piece, whether a known but technically demanding work such as a Beethoven quartet or the new composition by Tavener, we can consider the architectural form as the "commanding form" described by Langer (1977). In the case of a musical composition or theater playscript, the event of conception, that "the great moment of creation," has already happened in the mind of the composer or playwright, yet needs to happen again in the performing ensemble (Langer 1977:123). The commanding form serves as a guiding force for the proceeding work. It served the composer or writer as "a measure of right and wrong, too much and too little, strong and weak" (Ibid: 122), and will serve the performing ensemble in the same way, once they have achieved "recognition of the matrix" or implicit logic of the work that guided the original makers' judgment (Ibid: 123). The Attacca Quartet acknowledged that they were careful to begin work on new pieces by first learning the structure, for this reason. Schroeder explained:

> …this is usually like a process that we go through, us as a quartet, to play modern music—mostly modern music. Other pieces we do the same thing [too]…We try to play a lot in the beginning with the metronome so that we can hear how things line up, clearly. And then when we take it away, we don't have to worry about that being together as much. And then we can focus on musical aspects much more. But if we start with all the, you know, musical stuff, with very complicated rhythms and things like that, sometimes it takes away from what the composer had intended, I think.

Schroeder suggests that starting with interpretive work before addressing foundational work inhibits the quartet's ability to learn what the composer intended, and use that understanding to inform musical work. By the practice of extreme preparation, quartets first discover and assimilate or internalize the commanding form, including the internal

rhythm of the piece, as the foundational, shared knowledge that guides their further work, in which they are now free to develop musicality and conversation. They can do so more freely knowing that (a) they share an understanding of the commanding form, and (b) their collective explorations emerge in response to the influence of this commanding form, even when they push up against the edges of that form (as we will see exampled by another method of ensembling).

Method #2: Internalize the pulse

Along with establishing and assimilating the architectural form of the piece, in early phases of the work the musicians are also engaged in "feeling" and absorbing, or internalizing, the pulse. While I have included this activity as a part of extreme preparation, I set it apart as its own method, as it describes a special way these groups establish and sustain synchrony as a "collaborative, practical accomplishment" (Weeks 1996:201); whereas extreme preparation might also involve other methods of coordination (such as using a metronome). The Finzi Quartet described the pulse as the "steadiest" and "most vocular" sub-rhythm. They start their work by "listening" for the pulse in the music as they play together—they listen for both aural and physical, or tactile, cues embodied in others. We can consider this an example of how musicians mutually tune-in to one another, as Schutz describes, by "living together simultaneously in specific dimensions of time" (1964: 162). This work proceeds, as far as I observed, without explicit discussion. Their sense of the pulse moves from being effortful to being second-nature, over time. As cellist Lydia Shelley describes, the pulse becomes "internalized a bit in me, where I feel like I have the pulse sort of physically in me, from having done it for so many hours."

The Finzis begin with the pulse for the sake of first being together, achieving and sustaining synchronicity and unity. From here, they open to other parts of the work that involve understanding and exploring the structure of the music. First violin Sara Wolstenholme considered their first task to be to locate what to listen to "in order to first of all be together, and then make sense of the structure of the piece." She accesses the architecture of the score through the performance of playing in time. Once they have established the pulse, they begin to push or pull against the pulse, to give it direction.

Shelley explained: "it's a horrible feeling actually to have to feel like you're *really* pulsing. [*She pulses her body on heavy, laborious down beats.]*...And it's much nicer to feel like the pulse has some direction." *[She pulses her body higher up, extending it forward, as an example.]* van der Werff referred to a similar dynamic in how opportunities expand for how the musicians play with the pulse, or beat:

> Normally...even if we're all playing in time, we're not going to be *exactly* in time. There will be room for someone to do something "musical" [*He gestures quotation marks*], you know, sort of pull or push against the beat, whatever. And you can follow.

Having established the foundation of pulse together, and internalized it, the musicians are free to explore ways of extending the pulse for musical purposes while sustaining a high level of coordination with the ease of second-nature; the ease Robertson observed in his assessment of Finzis' group dynamic.

The pulse is not inherent to the score, latent to be discovered, but rather particular to the quartet generating it. As Weeks suggests in his study of chamber musicians, if they proceeded to play "according to the literally elapsed number of beats" they would be out of time with one another (1996: 219). Harpham Quartet second violin Ciaran McCabe, described pulse as unique to each quartet: "because we're used to playing together, we probably all have our own sense of, as the four of us, our own sense of rhythm or our own sense of being together." Robertson elaborated on this point:

> The group as an ensemble will create distortions peculiar to them.... because they'll make presumptions based on their particular, natural tendencies, and technical styles, their—it's hard to put it into words, but their personalities, as ensembles, will tend them towards assumptions that this should be this, and that should [be that].

The musicians collectively determine their "right" place in time in relation to one another, rather than the literal beats, to develop their own peculiar distortions. Robertson described this as a challenge the four quartets would face when working together as a larger group on the *Towards Silence* project, and a variation already in evidence in pre-rehearsals.

Internalizing the pulse, as a strategy for playing together in time, is one fundamental way in which groups develop their own sense of "being together" as a unit that goes beyond technical achievement of accuracy. There is no external measure of "accuracy" apart from the group, only an accuracy that can be developed in the relations between members.

According to the theoretical framework of ensembling, "preparation" as a method is performed to enable the quality of release, critical to engaging in collaboration-a-conversation. As Klouda said, knowing the fundamentals allows musicians to "release your ears more" and engage in more musical conversation with one another. However, *extreme preparation* both enables release and potentializes other special qualities of interaction. Establishing a collective understanding of the architectural form prepares the group to engage in musical explorations and conversation within a coherent sound world, even as they may push and pull against that form. Developing and internalizing a shared sense of the pulse becomes the foundation for each quartet's distinct route to ensembling, as a unit, that allows for difference, both in how one quarter performs a piece as compared to another, and differences in the ways quartet members might push or pull in relation to the pulse at any given moment. Both of these methods support and extend methods suggested by theory, as I show in **Table 5.B**.

Method of Ensembling	**Source of method in literature**	**Description of method in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested revision/elaboration of method**
Extreme Preparation	Austin & Devin 2003; O'Donnell & Devin 2012	Activities to master craft/ fundamentals that allow for reflexive action (A&D 2003); Preparation "involves learning and practicing whatever you need to know and do in order to be ready to learn whatever needs to be learned and do whatever needs to be done" (O&D 2012)	Paul: "For the first 15 or 20 years we rehearsed every day of the year, for between four and six hours, and we would do three to four hours of practice between rehearsals…Because without that I didn't feel remotely prepared" and "If you don't lay down the architecture [you can't achieve the extraordinary]—We're talking extremely subtle."	*Support & extend:* "**Extreme preparation**": involves establishing a shared understanding of the architectural/ commanding form and mastering fundamentals. Technically and musically oriented activities are mutually supportive; Ivo: "they're just different aspects of the same thing". The more technically demanding or "new" the task, the longer the time needed to prepare.
Coordinate via	Sawyer 2005,	Interactional synchrony	Lydia: "[the pulse	*Support & extend:*

interactional synchrony: ***Internalize the pulse***	2003; Condon and Ogston 1967, 1971; Schutz 1964; Weeks 1996	is "rhythmically coordinated interpersonal interaction" the social processes by which people synchronize verbal and non-verbal behaviors (S 2005: 52); it involves "living together simultaneously in specific dimensions of time" (S 1964)	becomes] internalized a bit in me, where I feel like I have the pulse sort of physically in me"; Ciaran: "because we're used to playing together, we probably all have our own sense of, as the four of us, our own sense of rhythm or our own sense of being together."; Paul: "The group as an ensemble will create distortions peculiar to them."	Interactional synchrony performed as "**internalizing the pulse**"; each group develops it's own peculiar, collaboratively accomplished, sense of time as a felt pulse, allowing for difference; "accuracy" in timing is determined in relationship to one another rather than to the score.

Table 5.B: Extensions to theoretical framework: "Extreme preparation" and "internalize the pulse"

Method 3: Dual Attention

> *You could view the whole of rehearsal as a strategy to bring yourself to your optimum type or nature of attention in order to maximize your own potential and the antennae you have for the group.*
>
> - Paul Robertson (O'Donnell 2005)

Extreme preparation enables musicians to "maximize their own potential" and to achieve a state of relaxed readiness, in which they are confident enough in their mastery of the architecture of the piece and their ability to respond with colleagues as a cohesive unit (summoning that unitary force of expression), that they "release" their ears to listen, and open themselves to whatever happens in the work. Doing so, they exercise a "dual attention," attending both to their own actions and to the other members of the group. The Finzi Quartet said, in this phase of the process, after the fundamentals are in place, they are able to start "listening out for colors that can be made." The degree to which the musicians can listen out and to others increases as their need to attend to fundamental tasks decreases: as the pulse moves from being effortful to maintain to becoming second-nature, for instance. Robertson explained: "until you get to the point where actually you can just do [the fundamentals] *totally* automatically, so that you can actually have a dual attention—so

you can attend to yourself, but that is secondary to the level of attention you're giving to the group—until you do that, you don't even have the beginnings of an ensemble. And that takes time." Ensemble requires members to exercise dual attention.

In December 2005, Robertson shared strategies for "maximizing the antennae" for the group, while coaching a vocal group at the Centre for Art and Leadership (CAL) in Copenhagen, Denmark (O'Donnell 2005). The four singers—a soprano, an alto, a tenor and a bass—sat in a circle amidst a dozen CAL members, including professors, researchers and professional artists who were present to observe and learn from the demonstration. The singers sang from a fixed score. Since this was the first time in which Robertson had coached them, the methods he proposed were new to the vocal group, and their task was to work at becoming good at them over the course of two hours, in the interest of learning new strategies for improving both their ensembling ability and the quality of their outcomes.

During this rehearsal, Robertson coached them to regularly recalibrate their attention to what was happening in the moment, regardless of what had happened the last time they sang a section or what they wished might happen. As they worked, the Alto shared a discovery: "When you do this exercise, what happens for me is I can't pay as much attention to my own singing. I have to listen more to the rhythm and the other people, so there is not so much room for my self-awareness. It's changing, which I think is one of the good effects." In making this observation, the Alto described an experience of relaxing self-awareness in favor of allocating a majority of her attention to the emerging rhythms and actions of her colleagues. Doing so, she provided an example of release and of opening to others, prioritizing awareness of the group over awareness of her own contribution. Second violin Keiko Tokunaga considers it a routine aspiration in her work with the Attacca Quartet to relax her mind and surrender to the music: "the mental state of musicians affect a lot of the music itself. So if you are very relaxed, and if you're part of the flow, I think the music will speak by itself. Which is what we're usually trying to do." The Alto and Tokunaga's descriptions of emerging experiences in the work offer evidence of an activity of surrender, or of "relinquishing sovereignty" (Austin and Devin 2003) or control of ones own individual contribution in favor of letting the group, and the music, speak.

Participants' ability to attend more and more to colleagues and to the emergent

music has in large part to do, as Robertson says, with mastering the fundamentals. Austin and Størmer (2008) describe some ways in which legendary jazz musician Miles Davis created the conditions for him and his colleagues to minimize the attention they had to allocate to their individual tasks and free up capacity to listen to others. Strategies included hiring more technically skilled musicians and practicing to increase mastery. At the same time, Davis also chose to make music *less* technically complicated, as demonstrated in the band's work on the album *Kind of Blue*. The song "So What" had only two chords and was virtually free of technical challenge (Ibid: 13). This freed up musicians' capacity to focus on ensemble interactions, and "make context-sensitive decisions in the moment…and based on their emerging understanding" (Ibid: 13). Presence, listening, and spontaneous interactions between group members were emphasized.

Over time, exercising this level of optimal attention, groups cultivate a refined sensitivity to one another's specific cues and clues, sharpening their "antennae" for the group, as well as for other sensory input: i.e. the acoustics of the concert hall; the size, energy and mood of the audience; even the weather. Guarneri violinist Arnold Steinhardt acknowledged the influence of both relational and environmental conditions, however subtle, on musical performance:

> Each note [of the Beethoven recordings] had been recorded at a specific point in time, a creation of that one single moment framed by our physical well-being, preparation, and disposition. What if we had recorded twenty-four hours later? Perhaps the sun no longer would have been shining, the atmospheric pressure might have been lower, and the four of us in a different mood (Steinhardt 1998: 147-148).

Having mastered the fundamentals, musicians have more capacity for attending to and detecting subtle information from one another and their environment over time. They incorporate this information, moment to moment, in the practice of reconceiving (as discussed in Chapter 2; Austin and Devin 2003, O'Donnell and Devin 2012). Extreme preparation and decades of intimate hours together enabled the Medici ensemble to become so attuned to one another that Robertson knew "even before [his colleagues] came in the door what state of mind they were in." While Robertson underscores the fact that

developing this capability takes time, and the examples I offer here suggest it also requires release and a willingness to relinquish sovereignty, this capability can be developed to reach a level of near instinct, in terms of the speed and facility with which musicians can incorporate the contributions one another is making into their own work, and is considered by informants to be critical to ensembling. As the Alto suggests, releasing self-awareness can even make the work more pleasurable.

While Austin and Devin suggest the idea of dual attention, though not explicitly, in their description of focus as being "comfortably aware of everything that's going on around you" and "productively focused on what you are doing." (2003: 90). It may be that this practice is an extension of the practice of focus. It also seems critical to the related practice of relinquishing sovereignty over your own contributions in favor of attending to the work of the group as a whole. Given that dual attention involves particular strategies for freeing up capacity, and achieves a high level of intimacy in relation to others, I add it to the framework of ensembling as its own method for now, so as not to limit the potential for recognizing how it might be performed in stretched conditions. (See **Table 5.C**). Dual attention may also appear similar to deep listening, but I suggest that is an example in which methods can be separated conceptually, while being highly interdependent in practice: The capacity to allocate dual attention is critical to enabling group members to open to the others and engage in deep listening, a practice which in turn enables reconcieving.

Method of Ensembling	**Source of method in literature**	**Description of method in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested revision/elaboration of method**
Dual attention	--	*Austin and Devin suggest this in their description of focus: "you're comfortably aware of everything that's going on around you, and you're productively focused on what you are doing." (2003: 90)*	Paul: "you get to the point where actually you can just do [the fundamentals] *totally* automatically, so that you can actually have a dual attention—so you can attend to yourself, but that is secondary to the level of attention you're giving to the group—until you do that, you don't even have the beginnings of an ensemble."	*New*: members practice **dual attention** when they are able to minimize self-awareness and increase their capacity for attending to others and to emerging interactions between members.

Table 5.C: Addition to Theoretical Framework: "Dual attention"

Method 4: Lead collectively

> *I think that the idea is that everybody really feels like they're potentially a leader. That they are…absolutely equal. And different times in a process of both working and performing, you have different people taking different initiatives.*
>
> - Fenella Barton, Violinist

The musicians I observed and interviewed unanimously argued in favor of equal leadership engagement from all members; alternatives were not an option in their work-as-usual. While Corigliano Quartet violinist Michael Jinsoo Lim said that the traditional quartet model typically distinguished the first violin as the leader, his quartet intentionally disrupts that model by alternating who plays first and second violin: Lim and his colleague Lina Bahn share the role. Lim explained that there are "certain things that the first violinist *will* lead, sort of, in a physical way, with sort of some cues and some things." This form of leadership—giving "leads" or cues—is dictated by the design of the score. "But aside from that," Lim continued, "I think it is a completely equal four-voice group." Violist Melia Watras, sitting at his side, agreed.

Aside from preferring to share leadership equally, several musicians argued that no one person *could* lead all the time, because the music demands different leadership from different players, depending on the composition. Informants repeatedly referred to the string quartet as a form differentiated from other collaborative musical forms by this requirement. They "map" or mark those leads as one important way of perceiving the architecture of the piece, and knowing to whom they should listen at a given moment. Aside from those leads dictated by the score, quartets develop their own processes for distributing or passing leadership amongst members, often spontaneously. Robertson described leadership as "a constant negotiation, changing within as well as between pieces of music", both in conversation and in the processes of playing. Court Lane violist Drew Balch said his group aspired to practice leadership that was "interchangeable any moment."

Ending his autobiography with a crescendo, Steinhardt captures the moment-to-moment shifts of leadership and real-time response, as it occurs *in the music* in the Guarneris' performance of Schubert's "Death and the Maiden." Here is an excerpt:

> We take courage in the variation's second half, roaring to a forte and then subsiding, but my last notes are too free. John has to stand on his head to follow me. Sorry, John. Thanks, John. The cello variation is upon us. Don't follow David's lead, instead watch his third finger, which lifts up for an instant before he puts it down to play. Imagine that! We're with him. No time for self-congratulations. David is now the rhapsodic soloist, we the little wheels and springs of a fine watch that must be perfectly timed to him. Tonight David ignores our plight and goes on a flight of fancy. How are we supposed to follow him and play together at the same time? David's free fight is impressive and we somehow manage to hang on, but it scares me every time. The four horseman (Death's henchmen?) gather for the "rider" variation. John leads the eighth- and two sixteenth-note pattern that is our gallop across the heavens. We dig roughly into the strings. These riders are up to no good. Sweat is streaming down Michael's red face, and he is bobbing and weaving excitedly. Is his horse giving him more trouble than ours? Michael and John's gait drops quietly to piano, muffled by winsome voices from David and me…The music bursts suddenly into fortissimo at the second half of the variation. David and I trade off quarter notes slurred into chords. We are angry gods hurling thunderbolts across the sky at one another. But David's thunderbolts are different every night, and since he throws first, I must be prepared for anything. Tonight he sweeps the chord with a little extra length. When David sweeps, I sweep. We all come together for the last three notes, which ring in unison, and as the dust settles, John flips his page over… (Steinhardt 1998: 303-304)

This deft passing of leadership from musician to musician—sometimes dictated by the score ("he throws first"), sometimes by artistic choice ("flight of fancy")—forms a dialogue from which the performance emerges through equal participation of all members. When leadership is performed as a constant negotiation, every member of the quartet, at every moment, remains alert and ready to take the lead. The potential that any one member might lead at a given moment, demands the competence and readiness gained through extreme

preparation, as well as dual attention that enables members to react spontaneously to shifts in leadership amongst them.

The Medici quartet preferred leadership negotiations to happen spontaneously through the music rather than by advance discussion. In one instance, their attempt to determine by explicit negotiation who would lead caused such problems, their entire six years of investment in learning the Beethoven quartets was put at stake. They spent weeks of rehearsal on one particular Beethoven quartet, passing the leadership role around the group and failing to agree on a viable solution for who should lead the opening; each musician had a compelling argument for why he should lead. Disagreement raged, and the Quartet was on the verge of throwing in the towel, when a solution was finally, accidentally discovered *in the music*. At Lewis' suggestion, they played the quartet one last time without discussion or pre-determination, and it worked. According to Robertson, once they had finished playing, each musician turned to the others and simultaneously said, "You see, *I* was right!" Because everyone operated under the belief that he was the one leading the others, a solution was achieved that could never have been reached through explicit discussion and negotiation. The performance was best served when everyone was equally engaged in leadership. Medici was able to complete, and later record with great success, the Beethoven Quartets.[51]

The Guarneri example above offers an example of how interchangeable and spontaneous leadership generates dialogue between members. Several informants took this idea further, to the point where members *lead together*, simultaneously, on the basis that if one leads and the others follow, the others are already behind the impulse, and perhaps behind the cue, or timing, itself. In the Medici example above, everyone behaved as if they were leading, so leadership was carried out simultaneously, without a dependence on followership. "Following" is often considered too passive a role. Rather than following leads, members are meant to actively respond with a contribution that can in itself be taken by colleagues as a lead, if they choose to respond to it as such. It may not always be clear who is leading. Barton described the between a "lead" and a "contribution" as subtle: "different people can take the 'lead' at different times, or different people contribute at different times. It's a fine line, and you know, it's difficult to pin down sometimes." When asked if one of

[51] Robertson told this story in a presentation at Harvard Business School (O'Donnell 2007).

them tends to lead, Court Lane cellist Bloxham replied, "We very much feel as though it's a *body* working together." The fine line of knowing who's leading when, the potential that everyone might lead interchangeably, or even simultaneously, seems to bring these groups to the point of experiencing more than a dialogue, and something closer to feeling, thinking, and acting together: the experience of ensemble.

Leads themselves are given with different purposes: to cue colleagues, to sustain coordination, to establish the architectural structure of the piece so that colleagues know what to listen for when, to influence interpretation, to raise the intensity of interaction through spontaneous action. One member may take over a lead for another in order to free that person to allocate their attention to performing a highly complex instrumental task. Steinhardt described a "lead-then-follow" reflex he practiced in the Guarneri quartet, as a way to make sure his colleagues responses to whatever leads he gave were "right", and that the group stayed together: "After I give the lead in the Finale of Mozart's K. 589, I'll watch the motion of [second violinist John Dalley's] bow and, if necessary, slightly alter my own motion so that we're perfectly together" (Blum 1986: 11). Steinhardt leads, while instantly incorporating his colleagues response to his lead in his next action, sustaining both synchrony and dialogue.

Austin and Hjorth (2012) tell us that creative groups capable of ensembling learn how to live with the potential for any one party or logic to dominate, while maintaining a dialogical relationship in which no party dominates. The music may require different members to dominate the conversation at different moments, and instigate new directions, as Steinhardt's description of playing Schubert suggests. But the musical form also requires leadership to move through the group. Expert string quartet musicians achieve dialogical relationality by leading collectively. Van der Werff describes this as critical: "The dichotomy is you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals." When leadership is shared, it indicates that members open to the ideas of others and that ideas are being integrated: a dialogue between equal forces is happening towards a unified whole. When leadership becomes a collective activity, a "body" acting together, it suggests ensemble is emerging. Achieving any of these states of collective leadership involves a walking "a thin line" and requires the equal engagement of every member. If even one member drops out, then the quality of the conversation suffers, active

member ideas may dominate, and, given that everyone is allocated a minimal requirement of performing those leadership tasks required by the score, the process itself may break down.

I offer "leading collectively" as a new method for the framework, tentatively suggesting it as the primary way in which string quartets maintain dialogical relationality (see **Table 5.D**). However, I keep open to the idea that categorizing it as such may limit the way we understand how collective leadership cultivates ensemble. Leading together, as a simultaneous action, may be a strategy for strengthening relationships with one another. It also seems geared towards increasing the likelihood that ensemble, in the sense of thinking towards a central point, and acting together as a "fifth body", emerges in the work.

Method of Ensembling	**Source of method in literature**	**Description of method in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested revision/elaboration of method**
Maintain dialogical relationality, *via* ***leading collectively***	"Maintain dialogical relationality" from Austin & Hjorth 2012	No one logic, idea or person dominates, allowing for opposing ideas to become integrated (A&H 2012); *Leading collectively briefly touched on by O'Donnell and Devin 2012: "Sharing and spontaneously passing leadership among members…[means that everyone] responds to each leadership action with a new action that in itself can 'lead' the group"…*	Fenella: "I think that the idea is that everybody really feels like they're potentially a leader. That they are…absolutely equal. And different times in a process of both working and performing, you have different people taking different initiatives." Ivo: "The dichotomy is you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals."	*Extend by addition*: members maintain dialogical relationality by the practice of **leading collectively**, actively responding to one another with contributions that can themselves be taken as leads. ***Leading together*** suggests a variation on this practice that indicates ensemble as "acting together" is emerging.

Table 5.D: Addition to Theoretical Framework: "Leading collectively" as a way to maintain dialogical relationality

Method 5: Open the process to the emergence of consent

> *…in the process of rehearsal, you can't make unequivocal decisions [as a leader] there either. Because the fact of the matter is that everything you do is contingent upon the*

> *conscious or unconscious, tacit or implied acquiescence, agreement and resolution of your colleagues. So in practical terms, you cannot decide the tempo unless you have in the act of deciding it actually created a situation—sometimes overtly, sometimes implicitly—that your colleagues are willing and able and glad to play at that tempo. Because the actual organization of notes and rhythms is overwhelmingly with the lower parts.*
>
> - Paul Robertson (O'Donnell 2006; Austin and O'Donnell 2007:6)

Another way in which our informants sustained dialogue in their process and ensured ideas were integrated, was to open the process to the emergence of consent or collective agreement. Robertson described the restriction quartet playing puts on leadership—that decisions are contingent on collective agreement, and can't be dictated by an individual. His strategy then, as a leader, was to cultivate situations in which certain choices became collectively felt or recognized as relevant to the work. During rehearsals of Vivaldi's *Four Seasons*, while the UK quartet musicians were configured as one chamber ensemble of 16, I observed several instances in which three members of the group might offer an idea about how to address a specific moment in the score that was being discussed, but a decision was never made before the musicians began again to play. In those moments, I would think, *Wait! Wait a minute. No one said which one they were going to do. How will they know, when they get there, what to do?* I expected them to arrive at the same problem-spot in the music and realize they forgot to decide what to do, or that some would do one idea, and others another. *Surely they will have to stop again and work it out.* I asked Finzi second violin Natalie Klouda about this phenomenon during a later interview:

> Klouda: …what tends to happen is that ideas are talked about, and even if a decision isn't made, everyone's aware of what the options are. And then they're more able to be—they're more clued in to what might happen in performance. And then you have to just go with what the soloist[52] is going to do.

[52] In the case of Vivaldi's *Four Seasons*, each of the quartet first violins alternated as the soloist, leading the group.

> So for instance this afternoon [at Winchester], there was a moment where Rowy[53] was suggesting a phrasing to Anna[54]. That maybe she could go—um, it was whether the phrasing was going to go *in* to something, or whether she was putting it just before, then it was going in. So Rowy was suggesting an idea, and I was kind of like, [*thinking to herself*] "Oh yeah, oh yeah." Kind of. And it wasn't really gone over, because we just didn't have the time. And then in the concert Anna did exactly what Rowy had suggested. So usually in the concert *something* will happen.[55]
>
> Q: And then you have to be ready to respond to that?
>
> Klouda: Yeah, exactly!
>
> Q: So you know it's possible, because you heard it—
>
> Klouda: Yeah!
>
> Q: --discussed.
>
> Klouda: So then you're really like waiting [*She suspends her hands as if holding her violin, listening*]. And that—that I *love* about chamber music. And that's kind of what we've been doing a bit. It's been a chamber music style. It hasn't been, you know, with a conductor, and more an orchestral kind of thing….No, it's been really exciting.

In this instance, Anna raised a particular problem. "[Bar] 17: it doesn't feel like it wakes up *enough*," she said to her colleagues. Rowy replied, by offering a different approach for Anna. Anna's face remains uncertain as she listens, and Rowy mitigates her offer with "maybe" and makes a face as if she's not sure she's right about the idea. Eventually, Anna nods, but still withholds agreement. She starts the group again at bar 17. While in this instance only Rowy offers a suggestion, in other instances, two or three people spoke up with ideas.

We can consider how moments such as these contribute to understanding the processes of opening to the other and integrating ideas in the performance of collaboration-as-conversation, described by Austin and Hjorth (2012). This moment offers an example of the group hitting a snag in the process of conversing. Ideas came into conflict rather than

[53] Harpham Quartet cellist Rowena Calvert.
[54] Harpham Quartet first violin Anna Harpham.

integrating, and a conversation broke down. The musicians stopped work, pointed out the trouble spot, and discussed options for how those ideas *might potentially* integrate. Though they sometimes do, in many cases they did not pre-determine how the ideas *should* best integrate, but directed the group's attention to the problem. (In the example above, Natalie wasn't engaged in the conversation, but she listened intently to the discussion, so her attention was directed to that moment during the concert.) The musicians generally refrained from determining which option would be right, allowing that they cannot always anticipate what might be right the next time – the parts need to be judged in relation to the emerging whole. While in this instance, Anna did what Rowy suggested in concert, the possibility remained that a third option might come into being.

Robin Ireland, viola for the Lindsays, described how this approach is useful when disagreements that are difficult to solve arise between members:

> The question of how you resolve those [disagreements] is one that everybody has to contend with. What has surprised me over the years is that very often you cannot come up with a resolution that is apparent at the time. So very often, the disagreement is left. But then, come the concert, some strange alchemy has taken place, and a good solution has been arrived at

In both Ireland and Klouda's reports, despite earlier difficulties, group members opened themselves to being affected differently in the moment, and to considering new ways of incorporating the other into their own work, where they may have been, for whatever conscious or unconscious reason, resisting. Then, in the moment, through play rather than negotiation, they converged on a form.

The group's approach to opening up multiple possibilities around a problem and leaving the solution to emerge in the work allows for them to converge on a form via play. As Austin and Devin describe, play is "the form on which action converges, but which never locks in on perfect repetition" (2003: 171). Explicit decisions about *how* to play the music are rarely made—that might invite repetition. Rather possibilities might be explored, but the group waits to see what the right choice will be in context, based on their awareness that context is always shifting. "Even to attempt an exact replay of an interpretation night

after night goes against the nature of change in all things", explained Steinhardt (Steinhardt 1998: 194). Robertson always considered each performance a preparation for the next one, allowing opportunity "to make a revision of opinion" each time Medici played a piece (Austin and O'Donnell 2007: 7). Given that the group has engaged in enough preparation to have a shared sense of the architecture of the piece, they can trust that what emerges will be a response to the commanding form when they play. At the same time, they allow ideas to develop and their work to benefit from increasing familiarity and competency over time.

I suggest this method as a pre-requisite to the method of converging on a form, further extending the theoretical framework (see **Table 5.E**).

Method of Ensembling	**Source of method in literature**	**Description of method in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested revision/elaboration of method**
Converge on a form –first requires groups to ***open the process to the emergence of consent***	Austin and Devin 2003	This activity happens in the context of play; Play is "the form on which action converges, but which never locks in on perfect repetition"(A&D 2003)	Robin: "The question of how you resolve those [disagreements] is one that everybody has to contend with. What has surprised me over the years is that very often you cannot come up with a resolution that is apparent at the time. So very often, the disagreement is left. But then, come the concert, some strange alchemy has taken place, and a good solution has been arrived at."	*Extend by addition*: **opening the process to the emergence of consent** means that groups resist resolving difficulties through negotiation, and allow themselves to collectively "arrive at" a decision or solution best suited to the moment in the context of play.

Table 5.E: Addition to Theoretical Framework: "Open the process to the emergence of consent"

The next four methods are examples of ways in which our informants "up the intensity" of their work together. I summarize these extensions to theory in a table following the discussion of Method 9.

Method 6: Elect to work beyond the edge

One way in which the Medici Quartet upped the intensity of their work together, from the start of their career, was to choose to tackle "absurdly difficult" pieces that were beyond what they knew they could comfortably achieve. They started their career together with the Janacek String Quartet No. 2. Robertson reflects on this decision:

> …extraordinarily enough I suspect we may have been the first people in the UK to learn [the second Janacek quartet]. Now it doesn't seem like very much, but at the time it was a huge achievement. It's extremely complex. It actually raises very particular, almost impossible challenges of ensemble, because it doesn't remain in the same tempo for more than three or four bars at a time….And we did it; we did it extremely well. We played the socks off it. It took about two years to learn it (O'Donnell 2006; Austin and O'Donnell 2007:4).

In order to play this piece, the musicians had to go through the processes and negotiations necessary in order to address the particular challenges of tempo and come up with a unified approach. Engaging in that process, according to Robertson, *made* the ensemble. They learned how to work together as a group. While this process of developing ensemble was unique to these four musicians at this stage in their career, we heard a similar example from the Guarneri Quartet, who invested years in developing the "complex system of leads" that enabled them to achieve fundamental capabilities as a unit.

We often hear examples, in retrospective reports of high-performing teams like "Hot Groups" (Leavitt and Lipman-Blumen 1999), of how people faced a near-impossible task or deadline and rose to the occasion through passion and sheer force of will, achieving a groundbreaking innovation or feat of productivity. However, we rarely see examples of groups capable of doing that again and again, over the course of multiple projects (Ibid: 8). Medici made a habit of working on the edge; different "edges" each time. Once Medici had established a way of working together to perform one kind of piece, the next piece would often present a whole new set of challenges which pulled them once more out of their comfort-zone, and from which (dis)advantage point they had to find new ways of coming together again. Robertson described the challenge that learning to play Beethoven offered:

> One of the things Beethoven does, quite consciously…is he takes you to an impossible place and then makes you drive forward. It's like if you were in a car and you were being told that the only right action is to accelerate at a brick wall and you don't de-accelerate. And that takes a huge amount of everything—faith and confidence. You are like forever stepping over into the abyss. If you're not, you're not playing Beethoven. And if you're not, you're not in a creative team actually. You're just a bunch of safety-first accountants (Robertson 2007).

Again and again, the Medici elected to work—not just "on" the edge, but—beyond the edge of what they knew they could achieve. Indeed, after investing six years in rehearsing the Beethoven quartets, the group hit the crisis of leadership described earlier, which threatened to be insurmountable. At the last moment, they found a way forward, but this crisis underscored the fact that the group's career was at stake with these challenges. With each new challenge, the ensemble grew its capability and capacity. I suggest this method as an extension of working on the edge, but at an increased level of intensity (see **Table 5.F**). Work beyond the edge involves learning, discovery and creative action, but at a degree of relational intensity that it forges the ensemble.

Method 7: "Destroy" the music

Another way in which the Medici Quartet upped the intensity of their work together was by practicing a particularly rigorous technique, which they learned while under the mentorship of legendary pianist Sir Clifford Curzon. Having first mastered the architectural form of a piece of music, learning how to play it correctly in time and with the unity required to ensemble, as well as likely investing time exploring interpretive choices, Medici then spent weeks of additional rehearsal "destroying" the music. Robertson described this process in an interview:

> [Curzon's] idea of rehearsal, which I think is just supreme, was that [he would] take a work that he knew absolutely every nuance of, and he would use a few weeks of rehearsal to destroy it entirely. So you actually couldn't play a damn thing! And then

> he'd build it back up again…Basically, you destroy it by assuming that nothing is good enough, and everything is debatable.
>
> For example, one of the exercises he did…is he would make himself and us play with a metronome, playing subtly *out of time* with a metronome. Well, if you do that, you're never right. It completely shakes the foundation. The easy thing is to bring something right with the metronome. Well, [it's not] "easy," it's torture, but you can achieve that. There's no real negotiation playing it correctly in time. Where it's negotiable is where you play it *imprecisely* in time, and that's an infinite process. So once you start questioning things like that, or you start questioning the tonal color you're producing, who's to say who's right. So useful rehearsal for me was to take something we knew, and then destroy it by debating the validity of what we were doing (O'Donnell 2006; Austin and O'Donnell 2007:7).

"Destroying" the music exercises and increases multiple capabilities at once, raising particular demands on the group to practice the methods of ensembling. Not only does this exercise require the musicians to have mastered the technical requirements of the score, but as they call their foundational work into question and explore alternatives to every choice, they become more masterful with the score, learning for instance how far they can push or pull against the beat before the structure breaks. As they explore the infinite variation possible, they come to know the score with a greater intimacy: Robertson said that this process allowed the composition to "reach inside and work [its] alchemy on us," (Robertson 2007). This exploration forces them to work on the edge of their own capabilities, to the point where they "couldn't play a damn thing!" They simultaneously explore the edges of their work as a group: what kind of communication is required to sustain coordination amidst less predictability, and how much variation they can manage. As they become less able to predict what colleagues will do next, they are increasingly dependent on listening to one another and adapting to new ideas. This kind of extreme engagement develops their antennae for the group, demanding full attention, and requires total engagement in the methods of ensembling. They exercise their ability to both generate new ideas and open themselves to and incorporate the new ideas emerging from the group work.

This method essentially breaks down any barriers in the work: it calls the commanding form into question, it potentializes debate around any one idea, it frees musicians of assumptions, breaks them from routine, opens their ears to new possibilities, and ultimately helps them to achieve a new level of release and ease in their work. With this kind of rehearsal invested, Robertson said he could "come on stage and play with no conscious complexity present at all, but a great deal of unconscious information informing the simplicity" (Austin and O'Donnell 2007: 7). Curzon called this state "second innocence," a state of grace that Robertson described as having the added benefit of an extremely pleasing effect on the listener.[56]

While an example of how our informants up the intensity of their work together, this method resists categorization. It ups the intensity of several methods at once: it is an advanced stage of extreme preparation that goes beyond establishing the architectural form to calling it into question. By breaking them from routine, "shaking the foundation" of their known work together, destroying the music generates instability in the process that increases members' interdependence, while inviting unpredictable multiplicity into the work. There is no space for rote or habitual behavior in this activity. Ensembling, as a process, intensifies. I suggest it as its own method (see **Table 5.F**).

Method 8: Inject disruptive variation

As an example of injecting disruptive variation, the next method, I return to my observation of Robertson as he coached a vocal ensemble at CAL (O'Donnell 2005). Moving beyond the exercise in dual attention, Robertson challenged the singers to increase the intensity in their work together through "willful" disruption. I pick up where I left off in my prior account, with Robertson's recognition of the beginnings of ensemble in the quartet's performance of dual attention:

[56] This specific method seems to be particular to Curzon and the Medici Quartet; I have yet to find evidence of similar practice by other quartets. I have had experience in theater ensembles with exercises that generate processes of calling the established form and choices into question, and opening ears to new possibilities. One example is an exercise in repetition, developed by Sanford Meisner, which develops deep listening, helps the actors locate impulses for shifts in thought, and brings them to new discoveries about the intentions behind lines in the text and which tactics will best serve them in the pursuit of those intentions (Meisner and Longwell 1987).

> At the moment I feel you have achieved the beginnings of an ensemble. What I'm lacking is somebody who will do something so outrageous that it completely raises the game. Somebody needs to quite willfully and craftily change tempo, dynamic, emotion, intention…It's getting too integrated…Do remember that your freedom to lead is that you don't have to do it the same way every time. You'd be well advised never to want to do it the same way.

Robertson used his violin to interject a change, as a way of demonstrating this point: "[By doing something new] I'm applying a strategy to raise my attention. Then if my attention is raised, the *intention* of the group is raised." He recommends that members intentionally inject new, disruptive ideas in order to maximize and sustain their own, and the group's potential. Through this practice, the group avoids the risk of repeating routine responses to one another, and is repeatedly called upon to increase their focus and level of attention. New ideas call for new responses, and new processes of integration. Austin and Devin suggest that interventions in the work, even those that seem like insubstantial suggestions, can "trigger big, unexpected, valuable innovations" (2003: 143).

While Austin and Hjorth (2012) suggest that groups integrate diverse ideas when they practice of collaboration-as-conversation, and that that integration is an indication that members are engaged in equal dialogue, Robertson suggests there is a risk of choices becoming *too* integrated. He underscores what Austin and Hjorth call the need to cultivate instability in dialogue, in order to keep new ideas emerging. The Danel Quartet sometimes opts to follow the stranger impulses, those to which one person is really committed but that lie outside the group's agreement, so that they aren't always "coming to the middle" (Moritz 2005). In this way they willfully inject variation for the sake of variation, so that their ideas do not become habitually integrated, their next actions too predictable. Robertson describes this method as an act of leadership, advising the singers to never give the lead in the same way. He also suggests a group is not ensembling until they are doing this.

I suggest this method, injecting disruptive variation, as an extension of the (somewhat vague) method of "cultivating instability" (see **Table 5.F**). It is an act of leadership that not only invites, but generates multi-voicedness in the work, so that new

ideas, even (and perhaps especially) disruptive ones, are regularly introduced. This ensures that reconceiving continues to happen. Robertson points out a problem in the group's process, that ideas are "getting too integrated", and indicator that the process is too stable. People are repeating choices. By consciously injecting variation into their conversations with one another, group members counter movements towards stability and generate the energy that propels the process towards new outcomes (Austin and Devin 2003). Groups that also "destroy" the music are open to these counter movements and ready to fly high in response to variation.

Method 9: Live with conflict

The last method provides another example of increasing the intensity of relational dynamics and attention in the work as well as cultivating instability: living with conflict. Austin and O'Donnell (2007) tell the story of an onstage musical crisis that happened late in Medici's career, after which Robertson considered leaving the quartet. Instead of trying to resolve the conflict that caused the crisis, which hinged on increasingly diverging philosophies about how to work together, the quartet chose to ignore that the crisis had happened (or was happening). Robertson reflected on the result:

> For seven years we lived with an open wound. On the other hand, living with an open wound is also quite a creatively interesting place. All these increasingly and sometimes intensely uncomfortable emotional places and conflicts all created a different set of expressive possibility, and therefore were entirely justified (Robertson 2007).

Despite that it was a personally harrowing time for Robertson, and he tried to convince his colleagues to address the conflict, he simultaneously found that living with conflict was as creatively interesting as anything more pleasant would be—perhaps more interesting. While Robertson confessed that a quartet could get along beautifully without conflict, he called it "a waste of time" to do so, because the music "would be nothing at all" (Austin and O'Donnell 2007: 11). Because the group found a way to continue to work together while sustaining this difficult dynamic, they found new "expressive possibility."

Robertson points to the expression made possible by the group relationships as the quality that differentiates one quartet from another, even one quartet from itself in prior years. The music, he said, reveals the identity of the quartet players as a group, "the issues they are tackling, and how they are tackling it, and whether they are living with the paradox of uncertainty, and ugliness" (Austin and O'Donnell 2007: 11). He elaborated on this idea by commenting on the work of a "pleasing" young quartet he'd recently heard on the radio:

> They were still at the point at which they're friendly, and the music is exquisitely friendly, beautifully turned out. And they haven't even gone there yet, you know…you could tell that they've yet to hit the first big crunchy nasty [conflict]…I think the sustaining comes from going through shitty, crappy bits and coming out the other side…They leave scars. And it's the scars that make [the music] interesting. It's like comparing the beauty of a girl of 16 with a woman of 45 or 50 or 80. It's a different beauty, and you have to learn how to appreciate that beauty differently. (O'Donnell 2006)

In Robertson's view, when groups live with conflict, uncertainty and ugliness, "Then you hear *real* quartet playing, and it's something else totally. It's like another world. But it won't be necessarily so beautiful, it will just go somewhere else completely [he clutches his heart]" (Austin and O'Donnell 2007: 11). While it may come at a high cost to member wellbeing, evidence suggests we consider living with conflict—insofar as a group can do so productively—as a method for ensembling. Given that it is difficult to understand yet whether that conflict strengthens relationships, or whether it might ultimately inhibit that process over time, I hesitate to suggest it as an extension of methods already discussed. I leave it set apart, to consider in future investigation (see **Table 5.F**).

Method of Ensembling	Source of method in literature	Description of method in literature	Example (or counter-example) from data in natural conditions	Suggested revision/elaboration of method
Up intensity: **Seek to work** (not on, but) ***beyond* the edge**	Austin & Devin 2003 (work on the edge); Austin & Hjorth 2012 (up intensity)	"Ensembling is held together by affect, by intensity in relations…" (A&H 2012); Motivation to work in the zone of discomfort in order to achieve learning, discovery, creative action (2003: 123-124)	Paul: "You are like forever stepping over into the abyss. If you're not, you're not playing Beethoven. And if you're not, you're not in a creative team actually. You're just a bunch of safety-first accountants."	*Extend by revision*: choosing to engage in **work beyond the edge** of known capabilities forges ensemble.
Up intensity: ***Destroy the music***		*Has implications for several theoretical methods, while going beyond prior expectations for those methods: i.e. extreme preparation, cultivating instability, and dialogical relationality.*	Paul: "It completely shakes the foundation…once you start questioning things like that…who's to say who's right. So useful rehearsal for me was to take something we knew, and then destroy it by debating the validity of what we were doing."	*New*: **Destroying the music** breaks members free of routine or assumption, calling everything into question and generating instability in the work that ups the intensity of ensembling processes, while allowing for a state of simplicity to emerge in later iterations.
Up intensity: Cultivate instability, *i.e., via* ***injecting disruptive variation***	Austin & Hjorth 2012; Austin 2000 and Austin & Devin 2003 talk about bringing divergent ideas in	"conversation does not deny or resist the instability of dialogical relationships" but cultivates "multi-voicedness" or difference and conflict (A&H 2012); Even seemingly incompatible ideas that inevitably arise between actors are "good", in that they are part of "the energy that propels the process" (A 2000:20)	Paul: What I'm lacking is somebody who will do something so outrageous that it completely raises the game. Somebody needs to quite willfully and craftily change tempo, dynamic, emotion, intention…It's getting too integrated"	*Support & extend by addition*: **Injecting disruptive variation** is an act of leadership that cultivates instability in the work, so that new ideas (even disruptive ones) are regularly introduced to counter movements towards stability.
Up intensity: ***Live with conflict***			Paul: "living with an open wound is also quite a creatively interesting place"; and "[conflicts] leave scars. And it's the scars that make [the music] interesting."	*New*: **Living with conflict,** rather than resolving conflict between members, can make possible a "different set of expressive possibility" and manifest as a special quality in the work.

Table 5.F: Extension/Addition to Theoretical Framework: Upping intensity via four methods

Elaborating the Theory of Ensembling

I offer these nine methods of ensembling as examples to enrich our theoretical understanding of how ensembling is performed in natural conditions, particularly those methods that address the mysterious suggestion posed by theory: that in order to call ensemble into being, group members need to deepen their relationships and up the intensity of the methods in which they are already engaged. In this section, I continue to develop our understanding of these methods in relation to theory. Then I propose a construct of ensembling based on these methods and introduce evidence that describes how our informants know they are ensembling, what conditions seem relevant to their ability to do so, and the role of shared beliefs. I also report on some conditions that seem to delay or inhibit ensembling processes, and those that seem to matter to ensemble's emergence. I point out when evidence supports or refines prior understanding, and which evidence contributes new insights and examples. I use this information to refine the theoretical framework introduced in Chapter 2, and look forward to how I will continue to deepen and refine our understanding of ensembling in the primary case analysis.

Methods

New examples from data suggest specific ways in which expert groups increase the likeihood of ensemble, some of which expand on prior theoretical knowledge, and some of which introduce new ideas to our framework. As discussed in the previous section, these examples include the following:

1. They engage in extreme methods of preparation, including establishing a shared and intimate understanding of the architectural form.
2. They achieve synchrony and unity by collaboratively accomplishing and internalizing a shared sense of the pulse—one unique to their group.
3. They practice dual attention, striving to maximize their own capability and increase the level of attention they allocate to colleagues and contextual input, to the point of relinquishing sovereignty over their own actions and surrendering to the emerging music.

4. They maintain dialogical relationality by leading collectively, whether spontaneously passing leads equally amongst members, or leading as one body together.
5. They open their processes to the emergence of consent rather than pre-determining choices out of context or trying to resolve conflict outside the activity of play, during which they converge on an emergent form.
6. They repeatedly elect to work beyond the edge of known capabilities, and engaging in this work together requires them to develop their own processes of ensembling.
7. They up the intensity of their interactions with one another and increase the potential for generating new and disruptive ideas by "destroying" the music, injecting disruptive variation, and living with (rather than resolving) conflict.

While some of these methods are more particular to certain groups than to others, many of them are interdependent, and difficult if not impossible to tease apart in practice. Groups engage in multiple methods iteratively or simultaneously, over time. Dual attention is more readily performed when extreme preparation has prepared participants. Collective leadership requires dual attention, and processes of injecting variation and developing consent require collective engagement in leadership. The emergence of consent relies on groups being engaged in processes that generate multi-voicedness and explore a range of expressive potential. Destroying or otherwise disrupting the work requires the group to have established a firm foundation in the architectural form, so that work can proceed productively, and ideas can be integrated towards a unitary outcome; at the same time, destroying the music ensures that groups don't converge on the *same* form over and over, but that they open their process to play so that they never lock in on perfect repetition (Austin and Devin 2003).

I explored these methods one by one in order to increase the specificity with which we are able to understand what our informants usually *do* to ensemble: how they up intensity, how they generate instability, how they ensure that multi-voicedness is thriving. But I suggest these methods be considered collectively, as a way to understand processes for ensembling. Informants make conceptual distinctions in the course of work too: they resisted considering technical and musical activities as separable when I asked if they do, then they gave give good reasons for addressing technical aspects of the work before getting

into "design" issues. When Robertson coached the vocal ensemble, he made similar conceptual distinctions to enable learning: he worked with the singers first on developing dual attention, then suggested they work explicitly on willfully injecting variation. In practice-as-usual, these methods are all in play, though it's a natural part of the work process for informants to bring one or another into primary focus in order to develop specific qualities, address a particular problem the group is having, or generate new ideas.

All of these methods in some way add to or extend the set of theoretical methods discussed in Chapter 2 (as depicted in **Tables 5.A – 5.F**). I use this new understanding to refine the theoretical set of methods for ensembling, joining them with previously discussed methods. While not all of the methods from the theoretical model have been addressed yet, none have been contested by data so far (**Table 5.G**). For instance, I did not find examples that support or extend the theoretical method of "creating space for play", but I did not prioritize a search for such data, and found nothing that conflicted with that general ambition; several methods could be argued to serve that role. I leave it in the set of methods, and suggest we look in the future for examples of doing things "just for fun" to generate a spirit of play. We will explore in our primary case (and future studies) whether and how these methods appear in group practices in other conditions.

These extensions to theory modify our understanding in another important way, beyond being additive or increasing specificity. Methods described as new or as an extension of prior understanding are geared more directly at achieving the quality of ensemble. From the earliest stages of extreme preparation, these practices disrupt the seeming progression set up in the theoretical framework, by which certain methods were more directed at certain qualities: release, collaboration, ensemble or play. They suggest a higher degree of interdependence between methods. Dual attention, for instance, jumps across categories from collaboration to ensemble: it is necessary to the practice of reconceiving (including the work of others in your own), and, as new data suggests, encourages group members to relinquish sovereignty over their own contribution. We still know little about what methods specifically increase the likelihood of play, because differentiating that quality from ensemble, or from collaboration, is still problematic. Theory suggests that play might be a realization, or indicator, of ensemble. We at least learn that opening the process to the emergence of consent allows the group to converge on a

form through play, to arrive at consent, and that disruptive variation counters the stability that might cause groups to converge around too-similar, or too-integrated forms, inhibiting play. The continued difficulty of differentiating play from ensemble may support the argument for a more integrated understanding of these qualities, rather than progressive.

Methods derived from theory (Chapter 2)	**Methods suggested by new data (in bold)**
Preparation	**Extreme** preparation
Focus	Focus
Seek to work on the edge	(Up intensity) Seek to work **beyond** the edge
Coordinate via interactional synchrony	Coordinate via interactional synchrony: **internalize the pulse**
	Dual attention
Maintain dialogical relationality	Maintain dialogical relationality, via **leading collectively**
Open to/embrace other *(deep listening)*	Open to/embrace other, *(deep listening)*
Reconceiving	Reconceiving
Create space for play	Create space for play
Cultivate instability	Cultivate instability via **injecting disruptive variation**
Relinquish sovereignty	Relinquish sovereignty
Strengthen relationships/increase relational intensity	Strengthen relationships/increase relational intensity
Converge on a form	Converge on a form, first requires groups to **open the process to the emergence of consent**
Up intensity – *how?*	(Up intensity) **Destroy the music**
	(Up intensity) **Live with conflict**

Table 5.G: Methods of Ensembling elaborated with new data

Proposed Construct of Ensembling

Based on the revised set of methods for ensembling, which suggest an increased degree of interdependence and a more explicit ambition to increase the likelihood of ensemble, I propose the following definition: *Ensembling is a set of interdependent methods that constitute a collaborative process designed to increase the likelihood that the quality of ensemble will emerge.*

Indicators of Ensemble (Outcomes)

> *[Natalie Klouda's expression lights up.] And then there was an amazing moment tonight when, in Cathy's concerto…there's a bit where we're kind of going like, "Dun. Dun." [She sings the music and strokes two beats in the air.] And Cathy's going, like, "De, de, de-le-duh-lun" [Her fingers play a quick rise and lyrical fall], down to it. And we got slightly ahead. We all went "Dun. Dum." [She catches and holds her invisible violin in air.] And we all—every single person around me—lifted their bow up for a mini-second. And then everyone came in with her. It was like everyone was so clued in at that moment, that we were all able just to give—I mean, naturally, if we would have just played, it would have been "Bum, bum." [A regular beat.] But everyone went, "Bum, [she holds a split second before landing on the second beat] bum." Like, immediately, right there in the moment…All of [the violins]. Every single one of them did that…You can't ask everyone to do it. But everyone was so clued in at that moment, that it worked…I was kind of thinking, "Oh, that was great! That was a brilliant moment." Like, we all—it was like time stopped all of a sudden. We did it all together…*
>
> *…that will definitely stay in my mind as the highlight of tonight's performance.*

The event or emergence of the quality of ensemble is a categorical phenomenon; it happens or it doesn't. As informants described, it happens "for two bars" of the music, or in a space of time in which everyone experiences thinking, feeling, or doing the same thing at the same moment. Ensemble does not occur by degrees; informants don't report a 60% ensemble phenomenon.

Informants recognize ensemble in the qualities discussed in the first half of this chapter. They experience a collectively shared intention and aspiration, sense something special taking place, the Really True Connection (RTC) between members, who are feeling, thinking and breathing together. They perceive special qualities in the work, such as unity and beauty. The musical form of four equal voices engaged in dialogue, enhanced by the methods of ensembling, differentiates string quartet music from other kinds of work. Robertson chose to be a string quartet musician for the special quality of relationship that was possible only in that form, a relationship perceived in the outcome. The quality of quartet members' relationships to one another—the way they create a shared sense of the pulse unique to them, and the way in which they converse within the music, the "scars" sustained through times of conflict—become part of the quality of the work.

Ensemble isn't necessarily recognized by their audience, though informants contradict themselves on this point. Robertson suggested 99% of audience members can't tell the difference between a performance organized by a click-track and one based on listening. However, he also suggested that when Medici performed the work of "destroying" the music, it had a pleasing effect on the listener, whether or not they were conscious of the difference. That difference is critical to participants; we heard from Robertson how even a subtle difference in preparation amongst members of his quartet was "repugnant" and "deeply stress inducing" for him, whereas musical performance informed by the practice of extreme preparation exhibits subtle qualities, for instance of gravitas and freedom.

As discussed in Chapter 2, by definition, the work of groups that ensemble leads to innovation (Austin and Devin 2003, O'Donnell and Devin 2012): the outcomes that result when groups ensemble are emergent and novel, completely unique to that iteration and subject in the next to "revision of opinion." Austin & Devin claim that ensemble work "nearly always results in a high-quality product" and that those within the ensemble experience "a feeling of impending success and a growing sense of happiness at being part of what's unfolding," so much so that even if the outcome doesn't succeed in the marketplace, the group morale will carry them forward to the next project (2003:132).

The event of ensemble indicates the emergence of special qualities intrinsic to the

experience, and special qualities extrinsic and exhibited in the outcomes. Groups that ensemble tend to be able to agree when those special qualities of experience and outcome emerge. However subtle and potentially subjective, this difference is recognizable to experts, and suggests an extension to our construct of ensemble:

> *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose. A common (but not necessary) consequence of ensemble is work that is perceived as unusual for its distinctive quality, value or power.*

Informants reported that the unitary force of expression that emerges as groups ensemble "takes over", exerting a special power to guide their ongoing actions, as they surrender to that expression.

Outcomes derived from theory (Chapter 2)	**Outcomes suggested by new data (in bold)**
Increased likelihood that ensemble (play) emerges	Increased likelihood that ensemble (play) emerges
Increased likelihood that novelty/innovation emerges	Increased likelihood that novelty/innovation emerges
Whole > Sum	Whole > Sum
	Special intrinsic qualities, such as RTC, thinking & feeling together, communion, happiness
	Special extrinsic qualities, such as beauty, unity, "scars", unique pulse

Table 5.H: Indicators/outcomes of ensembling elaborated with new data

Conditions and behaviors that inhibit ensembling

Austin and Hjorth warn that ensemble "can easily collapse into individual performances that, although possibly coordinated, do not constitute ensemble" (2012: 5). As we can gather from descriptions of the methods of ensembling, they take intense preparation, stamina and focus to sustain. During fieldwork, I learned of some specific conditions and behaviors that informants believe "collapse" or temporarily disrupt their ability to ensemble in natural (non-stretched) conditions. I present them briefly here, as a way to flag them for deeper consideration in the study of ensembling in stretched conditions. They include the following:

Conditions:

1. *Change in group membership*: Informants report that new members temporarily disrupt ensembling, as it takes time to develop a new group dynamic that incorporates that individual's particular skills and personality. Several quartets participating in the *Towards Silence* project had just experienced a change in membership; some even started the process short a member. The Harpham Quartet had just lost their cellist after five years of working together. Robertson initially found them to be "the most tentative" of the participating quartets, attributing it to this factor:

    > …for a young group, they've been going at it I think it was five years, and they've just lost their cellist, who was a *friend*. So, at the moment they're in—you know, they're at sea….They're good. They're young. But they're not quite functioning as a group. Well, because they're not a group at the moment.

    The Harpham Quartet was joined by a new, energetic member with a strong personality by the time it came to performances. However, Robertson suggests that it can take two years to fully integrate a new member. He reflects on a difficult transition in Medici's career:

> We did one or two really weak concerts, as I now realize, because we took on a new player and I just expected him to get on with it, and I was a bit rough on him, and I don't think the result was necessarily ideal either.
>
> Q: So he just had to jump in to the group and learn your material?
>
> Absolutely, like overnight. It's pretty terrifying. Having said that, I've spoken to other groups who have been in similar situation, and that's what happens, because you can't sort of stop. But it definitely faltered our progress, because we were playing very well up to that point, and it held us back for probably a couple years. It takes about two years to get someone in, really.

Since different members bring different personal qualities and relational dynamics into the "family" of the quartet, a change in group membership also permanently alters group dynamics, and a different quality (for better or worse) of emerges as a result. When second violinist David Matthews quit the Medici Quartet after 20 years, Robertson never found the same level of satisfaction with the players that replaced him (Austin and O'Donnell 2007: 9).

2. *Increase in group membership:* Blum describes the impact that an increase in group membership has on string quartet player's ability to react with immediacy and spontaneity, a key capability in the practice of several methods of ensembling.

> By adding player upon player…you eliminate the immediacy of the confrontation. When four players are solely responsible for maintaining their parts in a work of that magnitude, there has to be a greater sense of personal responsibility. There's also more room for spontaneity, for the unexpected. That's not to say that orchestra players aren't committed. But thirty or sixty string players cannot react like four." (Blum 1986:164)

The primary case, which calls for 16 quartet musicians to ensemble, will provide opportunity to look at the impact of increased group members on methods of ensembling.

3. *Change in craft tools or technology*: Acquiring new instruments requires musicians to adapt to the particular qualities of sound the instruments produce and how best to call them forth, changing the dynamics of their conversation with one another and temporarily disrupting ensembling. As an example, the Finzi Quartet was awarded the loan of a rare set of instruments in a competition held at Wigmore Hall in July 2010. These instruments, called "The Evangelists", are the world's only played matched set of string instruments by a major maker: Jean-Baptiste Vuillaume. While they had them for only two years, it took these two years to become "acquainted" with the instruments, exploring adjustments needed to work with the particular qualities of sound they produce. Gibson was pleased that they received the instruments at a time where they had several concert-free weeks to get acquainted with them (Finzi Quartet 2012).

   The instruments exhibited greater volume and a different "spectrum of colours" (Ibid). They blended differently with one another than the instruments with which the Finzis were more familiar. Klouda was challenged to find balance with her colleagues, with an instrument that had a "changeable tone [that] is in contrast to the other instruments in the quartet which are very much in their own sound world" (Ibid). Wolstenholme found that the St. Jean violin was "forcing me to explore, improve and refine so many aspects of my technique and musicianship" (Ibid).

   Though it may temporarily disrupt ensembling, in the long run there may be benefits to ensembling from acquiring new instruments. The Finzis tell us that they have increased their technical and musical capabilities as a result, and that they have created possibilities "to find new sound worlds and colours" (Ibid). Working with the instruments may also contribute to methods of ensembling by injecting variation, raising the level of attention, and inspiring new ideas.

4. *Insufficient time together as a group (i.e., limited group tenure, or insufficient time, as a resource, allocated to a task)*: Informants repeatedly state that ensemble "takes time." Robertson says he doesn't know any quick way to do it, referring specifically

to the development of dual attention. Extreme preparation takes enormous investments of both individual and group time. Later in a quartet's career they might be able to "step" effortlessly into ensemble together: Robertson experienced this working again with Medici after a five-year interruption in their career. He said, "We could step into an ensemble—we could do it in our sleep. It would be harder not to play together than it would be to play together…There's just a pattern of adjustment and usage." But at the start of a quartet's career, it takes time to develop such patterns and ensemble capabilities. The emphasis in this description is time together as a group in terms of enduring group tenure, though another relevant factor may be the amount of time (as a resource) allocated to a project, and whether or not that is sufficient to realize ensemble, particularly when new members or other conditions come into play.

Behaviors:

1. *Insufficient or incompatible preparation:* Taking as an example Robertson's description of his female colleague's insufficient, or incompatible, approach to preparation, ensemble collapses when the method of extreme preparation is compromised, and the group cannot share an understanding of the architectural form. Similarly, lack of sufficient preparation compromises an individual member's ability to allocate dual attention; to much of their attention is still required to get the fundamentals right.

2. *Lack of rhythmic or stylistic compatibility between group members*: Given that different groups develop their own sense of the pulse collectively and differently from other groups, new membership might disrupt this capability. Particularly when new members experience stylistic incompatibility or lack of "chemistry" with incumbents. Sawyer describes this possibility, and suggests incompatibility in group member style can include difference in rhythmic styles (2003: Chapter 2). We might also consider this (as well as incompatible approaches to preparation) as indicative of a lack of shared cultural norms, in which case it is a *condition* that inhibits ensemble.

3. *Efficiency strategies:* Behaviors that prioritize efficiency and shortcut usual work methods threaten the emergence of ensemble. Robertson described this as the primary cause of Medici's worst crisis:

> What happened is [my colleagues] turned to the commercial world to earn a living, and with it a kind of, as I saw it, an inward cancer of the musical soul started coming in, as far as I was concerned…Because they became highly efficient players. Actually they became more efficient than I was. No doubt about that. Because in that [commercial] world, you're paid by the minute, you're paid to play perfectly the first time, and you do. You get highly paid for doing it, and you become just a wage slave, you're just a technician. And time became extremely precious. We'd arrange rehearsals, and they'd be at the beck and call of commercial fixers, so the rehearsals were never kept, and were forever being reallocated and shoved around. And then the quality of rehearsal went into something completely different. They sought maximum efficiency, which they found. We became an extremely efficient quartet, and I hated it. It had no integrity or interest to me. All the love went out of it, as far as I was concerned (O'Donnell 2006).

4. *One party or logic dominates:* Any action or event that allows for one party or logic to dominate the conversation indicates that ensemble is collapsing (Austin and Hjorth 2012).

5. *Process, or relational, stability:* As Robertson indicated in his warning to the vocal ensemble, whose ideas were becoming too integrated, when members allow processes to stabilize, ensembling is compromised. This might indicate that members are repeating prior work, failing to raise their level of attention or the group's level of attention, refraining from the methods that generate new ideas and inject disruptive variation, resisting opening to the work of others, or resolving rather than living with conflict. The last item in particular, living with conflict, implicates professional as well as personal relationships between members, and suggests that instability in both is required. This is problematic. While some data suggests the "value" that can be derived from relational instability, naturally the

personal costs may become too high, or the instability too dysfunctional to sustain productively. Researchers frequently disagree as to whether conflict stimulaties or degrades performance in work groups (Kozlowski and Ilgen 2006), and it needs to be considered in context.

Evidence of conditions and behaviors that inhibit ensembling provide both support for and extension or variation on our theoretical understanding of the conditions that support ensembling. I use these findings to elaborate what we know in the following section (see **Table 5.I)**

Conditions that support ensembling

In Chapter 2, I used theory to suggest those conditions that, based on studies of high-performing groups, seem to be most relevant to the success of collaborative creativity. Those conditions include bounded, small group membership, enduring group tenure, shared cultural beliefs and norms, a clear compelling goal, a high degree of task interdependence, a task well matched to the capabilities of the group and its individuals, context support such as sufficient resources and access to needed information, autonomy to engage in self-leadership, close physical proximity, and the potential to perform synchronous work. I use new data to offer support for and variation on these conditions, proposing one new addition to the list: enduring craft tools (see **Table 5.I**).

Condition of Ensembling	**Source of condition in literature**	**Description of condition in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested extension or variation of condition**
Task well matched to capabilities	Csikszentmihalyi 1990; Hackman 1987	"Individuals members have high task-relevant expertise" (H 1987; Challenge of the task should be well-matched to the skill of the performer (C 1990).	Robertson was the self-professed "best player of [his] era" (Austin and O'Donnell 2007:4); Also chose tasks that challenged capabilities: "You are like forever stepping over into the abyss. If you're not, you're not playing Beethoven. And if you're not, you're not in a creative team actually. You're just a bunch of safety-first accountants" (Robertson	*Support with variation:* Task should challenge, not just match, group capabilities, or else "you're not in a creative team".

			2007).	
Close physical proximity	Sawyer 2005; Kiesler &Cummings 2002	Close physical proximity is needed to enable interactional synchrony; has range of benefits for interdependent group work: improves group commitment, builds stronger social bonds and group identity, and "is the most powerful medium known for coordinating work within an interdependent group" (K&C 2002:64)	Steinhardt: "God has given us peripheral vision. That's enough for everything you need in a quartet….I don't have to see [John's] expression…but I must be able to see his bow and, above all, the fingers of his left hand." (Blum 1986:14)	*Support*
Potential to perform synchronous work (achieve interactional synchrony)	Weeks 1996; Sawyer 2003, 2005; Condon and Ogston 1967, 1971	Interactional synchrony depends on the possibility of synchronizing verbal and non-verbal behaviors to enable interpersonal communication.	Precise, synchronous coordination is a critical feature of ensemble in live performing groups; Paul: "…they were there into kind of like a coherent whole within about two beats. And that's fine, that's how it should be…they just kind of immediately locked in."	*Support*
Group tenure, enduring	Hackman 2002; Sawyer 2003, 2007; Edmondson 1999 (time-limited vs. enduring group tenure); Salas et al 2005; etc.	Group tenure, the duration of time a group has experienced stable membership to develop capabilities, (i.e. for performing interactional synchrony), and for developing shared mental models (S+ 2005), shared commitment, and a shared pool of knowledge. "[G]roup flow is more likely to happen when players know the performance styles of their teammates and opponents" (Sawyer 2007: 51)	Change in group membership inhibits ensembling: Paul: "[Taking on a new member] definitely faltered our progress, because we were playing very well up to that point, and it held us back for probably a couple years. It takes about two years to get someone in, really."; Jonathan attributes ensemble in part to living & working together for 2-3 years	*Support with variation:* When enduring tenure is disrupted by the introduction of a new member, it takes time to integrate that person into the group, temporarily disrupting ensembling; It also changes group dynamics, meaning that a different quality (for better or worse) of ensemble will emerge as a result.
Bounded, small group	Hackman 2002, 1987; Wageman et al 2012	"If group members are to work interdependently on the task, it must be clear who is a member…and who is not" (H 1987: 336): Group size should be appropriate to the task: "large enough to do the work…but no more than that" (H 1987: 327).	Increase in group membership inhibits ensembling: "By adding player upon player…you eliminate the immediacy of the confrontation….thirty or sixty string players cannot react like four." (Blum 1986:164)	*Support:* 4 members specific to string quartets; informants report on ensemble in these conditions. *Though we have yet to learn about the limits of group size.*
High degree of task interdependence	Wageman 1995; Hackman 2002; Murnighan and Conlon 1991	Essential feature for teams is a task requiring people to integrate their work and be collectively	"…the string quartet is based on the idea that each instrument (and musician) participates as	*Support with variation*: Ensembling requires a level of interdependence that involves thinking,

		accountable (H 2002); "Highly interdependent groups…exhibit high-quality social processes, extensive mutual learning, and a sense of collective responsibility for performance outcomes" (W 1995: 174); "String quartets are particularly intense work groups. Members are reciprocally interdependent (Thompson, 1967)" (M&C 1991:165)	an equal partner" (Blum 1986: 14); Jonathan: "We very much feel as though it's a *body* working together."; Paul: "…everything you do is contingent upon the conscious or unconscious, tacit or implied acquiescence, agreement and resolution of your colleagues."	feeling, breathing, and acting together *as one body.*
Shared cultural norms/beliefs	Sawyer 2005; Hackman 1990; Levine & Moreland 1991; shared culture relevant to interactional synchrony	Groups benefit from common language and culture; it's critical to the introduction of new members: a group's culture embodies the task and social knowledge new members need to adopt (L&M 1991); "synchrony is much harder to attain if the participants are from different cultures" (S 2005: 52)	Lack of compatibility in terms of member approach to preparation or individual rhythm/style inhibits ensembling: Paul: "her bow speed would be wrong for the tempo we were playing at, for example. It was …slightly indicative of someone who hadn't absorbed internally the internal rhythm that was needed to construct the piece. I just couldn't [play with her]. It was like a lie."	*Support*
Context support (sufficient resources, access to information, etc)	Edmondson 1999; Hackman 1987	Some degree of context support (e.g., sufficient time, people, materials) needed for work to proceed, other kinds of support, such as extrinsic reward systems, may be problematic.	Insufficient time together inhibits ensembling: Paul: "Until you [have a dual attention] you don't even have the beginnings of an ensemble. And that takes time. There's no quick way of doing that."; Efficiency strategies, in terms of time use, also inhibit ensembling: Paul: "time became extremely precious. We'd arrange rehearsals, and they'd be at the beck and call of commercial fixers, so the rehearsals were never kept, and were forever being reallocated and shoved around. And then the quality of rehearsal went into something completely different…It had no integrity or interest to me."	*Support concept of sufficient time allocated to a project; when members chose to use less time and work more efficiently, the quality of the work suffers.*
Autonomy (self-led)	Hackman 1987, 2002; Wageman	Self-designed and self-led teams have the authority	"I feel that a group in which one person	*Support: Autonomy must be experienced equally*

	et al 2012; Muthusamy et al 2005; Gilboa and Tal-Shmotkin 2012 describe string quartets as examples of SMTs	to design and manage their own conditions, work tasks and processes; "[SMTs] foster greater autonomy, increase communication among team members, and intensify their commitment to the team and the organization, which in turn enhances innovative behaviors" (M+ 2005:53)	determines how the others should play doesn't sound the same as one in which every member is involved in the leadership and communicates musically on an equal basis" (Blum 1986: 8); Ivo: "The essence of quartet playing and the dichotomy, is that you have four individuals playing individual lines, and… you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals."	*amongst members in order to enable the practice of collective leadership*
Clear, compelling goal	Hackman 1987, 2002; Sawyer 2007; Bennis and Biederman 1997	A task that is clear, challenging and consequential/meaningful motivates and energizes a team, and enables self-managed goal-directed work (H 2002).	Paul: …extraordinarily enough I suspect we may have been the first people in the UK to learn [the second Janacek quartet]… at the time it was a huge achievement. It's extremely complex. It actually raises very particular, almost impossible challenges of ensemble… And we did it; we did it extremely well. We played the socks off it (Austin and O'Donnell 2007:4).	*Support:* Particularly if the goal presents a challenge
Craft tool tenure, enduring - NEW			New instruments/craft tools temporarily inhibits ensembling: Sara: "[using a new violin was] forcing me to explore, improve and refine so many aspects of my technique and musicianship"; it took two years to become "acquainted" with the new instrument	*NEW*: change in craft tools has similar impact to change in group membership: it takes "two years" to integrate; also changes (for better or worse) qualities of sound produced and dynamics of conversation

Table 5.I: Conditions that support ensembling

Performing arts ensembles offer examples of groups for whom these conditions are particularly relevant. My discussion of methods in this chapter has provided supporting evidence for all of the conditions in the table above, as well as proposing one new addition (enduring tenure of craft tools). Group size and tenure matters. While groups larger than

string quartets do experience ensemble—Bloxham reported his experience of ensemble in a group of 30-40 orchestral players—most report on the experience in smaller group contexts. No maximum size rule applies as of yet (perhaps there is one to be discovered in future research), but evidence suggests that increasing the size of the group from its usual composition has an impact on inhibiting ensemble, at least temporarily, as discussed in the previous section. String quartets are naturally bounded groups, though some musicians may simultaneously work as members of other ensembles.[57] I have just discussed how a change in group membership temporarily disrupts ensembling, and permanently alters the qualities of relational dynamics and outcomes. Group tenure, on the other hand, contributes to strengthening the capabilities of performing the methods of ensembling: to developing the group's own sense of pulse, developing sensitivities to colleagues that help maximize the attennae of attention, and exercising the ensembles' ability to up intensity of methods over time. Guarneri spent years mastering the foundations of ensembling, and Bloxham attributed his experience of ensemble to years of work with a tightly knit group of conservatory colleagues.

A high degree of task interdependence is designed into the composition of scores written for string quartets. Members are meant to participate and to lead equally. The methods of ensembling intensify their dependence on one another, and the qualities of their interdependence (relationships, dialogue, scars) are exhibited in the special outcomes they create. Extreme preparation ensures that the musicians are well prepared to address the task at hand, and, along with the strategy of choosing to work beyond the edge, continually challenges them to go beyond their known capabilities and develop mastery. Ensemble is the shared objective, though the design of clear, compelling goals by selecting ambitious works to perform and choosing to engage in methods of extreme preparation or destroying the music also forges the ensemble. Every informant exercises autonomy in their work, and autonomy is particularly critical to the exercise of collective leadership. This form of leadership in fact operates to preserve one another's autonomy, keeping each other free from the dominance of any one voice for a sustained period of time.

As I report several times in this thesis, close physical proximity is critical to the work of musicians, who are required to achieve precise synchrony in their work together,

[57] Natalie Klouda, second violin of the Finzi Quartet, is also first violin in another quartet.

much of which is based on their ability to communicate with one another using subtle embodied cues, even short intakes of breath. We learn an example of this in Steinhardt's description of playing Schubert: "Don't follow David's lead, instead watch his third finger, which lifts up for an instant before he puts it down to play" (Steinhardt 1998: 303-304). The potential to achieve synchrony, particularly when engaging in the method of internalizing the pulse, is a foundational condition of ensembling.

These conditions are based on our understanding of how the work of ensembling is performed in natural conditions, undisrupted by other kinds of constraints. We can't know for sure how critical these conditions are to ensembling, or which may be more flexible than others, until we observe efforts in stretched or otherwise different conditions. I investigate this in my study of ensemble in stretched conditions, the analysis of which we turn to in the next chapters of this thesis. After which I may be able to challenge the criticality of some conditions, and suggest either new conditions or variations on conditions that will likewise support ensembling, to expand what we know so far.

Group beliefs that support ensembling

Finally, descriptions of ensemble and ensembling offer evidence of groups sharing the beliefs described in theory. Robertson says that as a member of a string quartet, our purpose *is* ensemble. That purpose underlies musician's preference for choosing this particular form of work and music. While informants did not speak specifically to the need for a safety in the workplace, the intensity and intimacy of their methods argue for the necessity of this. As Steinhardt described, "It is very difficult to hide in a string quartet, and anger or bitterness or indeed any deep feelings are bound to surface during the rough transactions of daily rehearsal" (Steinhardt 1998:266). Robertson reported that during the more than 35 years in which Medici worked together, there were inevitably days when members were dealing with personal crises such as divorce, financial difficulty, or depression. Those times in particular required cultivating an atmosphere of care. He described:

> First thing, you're trying to create an environment where you could at least encompass that person's present state of mind, which would often be ghastly. Part of rehearsals was a strategy for doing something constructive when someone wasn't even present mentally or emotionally, because they had some big anxiety (e.g. just left their wife). These things happen. You are growing something (O'Donnell 2005).

Their shared purpose to grow the ensemble together got them through difficult times such as these. At times, such vulnerability, like conflict, could contribute to the special quality of music they made.

Revised framework for ensembling

Based on the above analysis and discussions of the methods, conditions, and group beliefs that support (or inhibit) ensembling, I offer a revision to the theoretical framework of ensembling in **Figure 5.1.** New contributions are in bold text. I replaced the "up intensity" arrow, as that served as a place holder until I could begin to learn more specifically how special teams like our quartets up intensity in their work together; two suggestions are added to the methods. More, I expect, should follow, as we learn more.

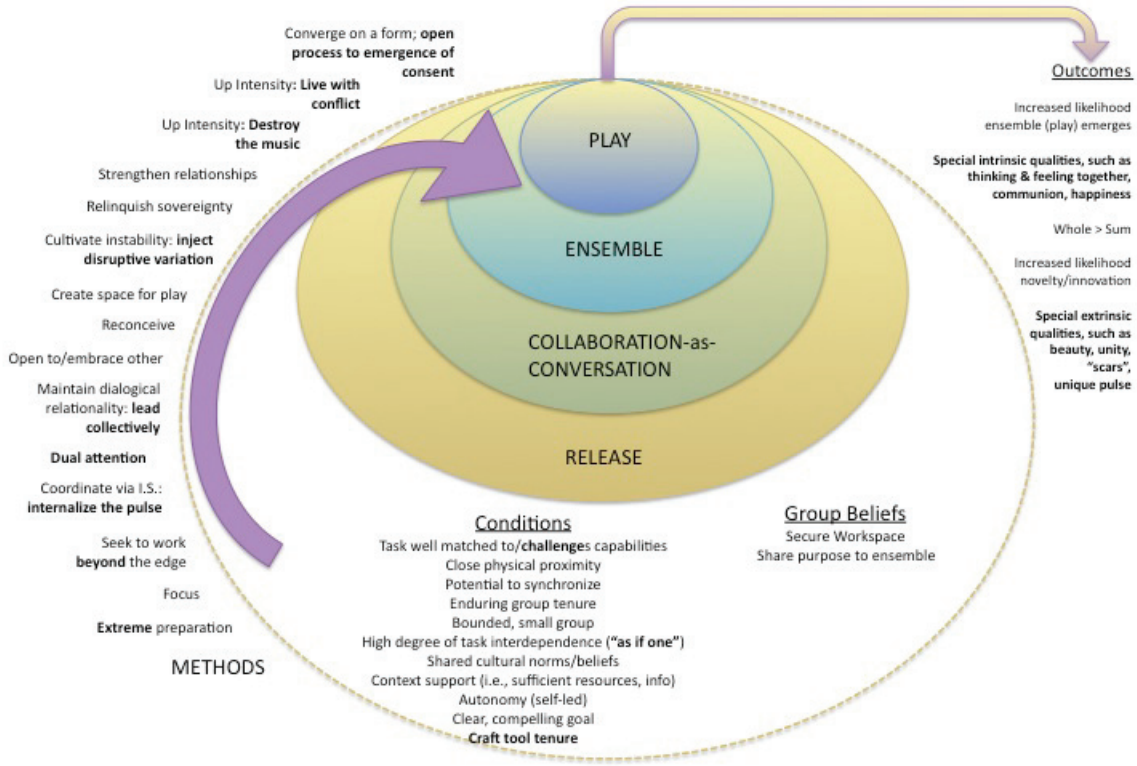

Figure 5.1: Theoretical Framework of Ensembling, revised and elaborated with new data

Conclusion

In this chapter, I discussed ensemble and ensembling in natural conditions in greater detail, using new data to elaborate our theoretical understanding. I suggested a tentative construct of ensemble, as experienced by informants, as *the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose.* On the basis of descriptions of ensembling and its special outcomes, I later modify that construct, to add the following: *A common (but not necessary) consequence of ensemble is work that is perceived as unusual for its distinctive quality, value or power.* I presented examples from fieldwork of nine methods of ensembling, which our informants engage in their work-as-usual. I described how these methods refine and elaborate upon the theoretical framework of ensembling in natural

conditions, introduced in Chapter 2, to arrive at a set of methods that more richly describe informant experience, and that suggest a higher degree of interdependence and of aspiration towards ensemble. I proposed the construct of ensembling, defined as *the set of interdependent methods that constitute a collaborative process designed to increase the likelihood that the quality of ensemble will emerge.* I then elaborated on the kinds of conditions that seem relevant to the performance of ensembling, primarily by investigating those conditions and behaviors that appear to *inhibit* ensembling.

I will proceed, in the coming chapters, to deepen our understanding of ensemble by studying how it is performed in stretched conditions. After allowing the data to speak, and exploring ensembling from multiple perspectives in Chapters 6, 7 and 8, I will return to this framework of ensembling in Chapter 9 to consider learning that may address the following: What does the performance of ensembling in stretched conditions teach us about the range or limits of conditions which enable its performance? How do experts respond to increases in constraints? Do these methods of ensembling matter when constraints increase, and do some matter more than others? Do new methods emerge as conditions alter? Is ensemble really dependent on these methods, beliefs, conditions, qualities? By what qualities do participants recognize ensemble, if it emerges? I'll investigate what informants do when challenged to ensemble in stretched conditions: What methods or aspirations they abandon, what they fight for, and what this teaches us. In short, I'll seek to increase my understanding of how work groups ensemble.

Chapter 6. *PLAYING IN TIME:*
An iteration-based approach to investigating ensemble in stretched conditions

I sit in a pub across the square from Winchester Cathedral with three members of the Harpham String Quartet. I've joined them on their post-rehearsal dinner break to ask questions about the work. The Towards Silence *UK premiere happens in two hours. I ask them what's going on when they feel like they are part of an ensemble.*

Ann[58], violist, replies, "Ensemble is usually about, like, the concept of being together and playing together. Actually moving and breathing and creating, like, the same tone, which blends in really well. It's like when, um, you know, like if you think about vibrations and resonance, there's a point where…kind of like, the widest vibration is the strongest…

Ciaran, second violinist, adds to her description: "Also, as well, maybe ensemble is where you start to feel like, you know, you're not just playing your instrument. The instrument is the whole group. Sounds a bit pretentious maybe, but it does give you a different feeling. It feels like you're part of a, like—" he rolls his eyes a bit, but continues, "—a bigger instrument. When it's working well it should sound as one. Even though there's individual voices within it. It's just a different feeling really than playing, like, a solo."

I follow up, "It sounds like you're connecting it a lot to your senses, like feeling the group around you moving?"

Ciaran nods. "When it's working well, yeah, definitely," he says, and smiles. "When it's at its best. And that's obviously a challenge in this project, because obviously we can all hopefully do that within our groups, but it's a challenge then to have that other level. Because there are points were we are, all sixteen of us, trying to make that sound. And then spatially, that's a challenge as well, because the further you are away, that's hard to kind of get one sound as well. So that's an extra challenge.

"I suppose that's why it's good that it's four quartets playing together," he adds, "because then hopefully they'll be more inclined to play together as one, as well." He shrugs, and repeats, "Hopefully."

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[58] In this chapter and those that follow, I refer to musicians by their first names, for the sake of simplifying the experience for readers. I name Medici Quartet members by their first and last names on initial mention only. I also regularly refer to Quartet 1 as Q1, Quartet 2 as Q2, and so on.

In this chapter, my first "round" of analysis of the *Towards Silence* project case, I consider a story of exploration. I describe my observation and interpretation of an iterative process, during which participants explored different strategies for addressing changing work constraints based on their evolving beliefs about what would make ensemble more likely to occur. Although theoretical descriptions of ensembling from prior research remain in the background, and serve as a guide to recognize behaviors and features of the process, I draw primarily here on new empirical materials. I depict the experiences of case participants' efforts in a series of narrative episodes and figurative diagrams that will ultimately inform a revision to the theoretical understanding of ensembling, but which, for the time being, must evolve—in the spirit of inductive research—in a way that privileges observation/ interpretation over prior theorizing (Eisenhardt, 1989).

This analysis reveals the evolving beliefs of the participants about what would "cause" ensemble to occur, and how they ordered their work as a result. Participants anticipated that certain responses to changing conditions would lead to certain outcomes, and that anticipation informed their decisions about how to proceed. Sometimes these expectations were surprised: they tried something and it led to an unanticipated outcome. In these moments, we learn along with the participants what strategies for addressing constraints lead to "better" outcomes, as well as why these outcomes are considered by them to be "better." This analysis enables me to propose relationships between conditions/constraints, responses to conditions, group beliefs, behaviors, and outcomes, as the musicians conceived of and demonstrated them, and is one way of understanding the emergence of ensemble. I add to this analysis my own perspective as an observer, situated outside the work process, which allows me to take into account multiple perspectives and experiences, to make interpretations different from those any individual participant could make.

By investigating the work of the musicians in this way, I find that a shared purpose to ensemble influenced their efforts, evaluations and decisions. Beyond being an objective inherent in the composition, as suggested by project leader Paul Robertson, ensemble mattered to the participants in these conditions, as it does in natural conditions. This mattering was repeatedly demonstrated in their debates and decisions. If it had not mattered, there would have been "easier" or more efficient ways to address the difficulty of

distance than the ways in which they do. I learn that participants consider these easier responses to organizing their work in stretched conditions—which include the use of a metronome, a conductor and the click track—"antithetical" to making music in the long run, because they are believed to lead to different kinds of processes and outcomes, *unless* the musicians come up with alternative ways of using them. Other, less efficient routes, involving "struggle", "anarchy", and embodied ways of organizing over time, become preferred, and were considered more likely to lead to ensemble.

I also find that a shared purpose to realize the composer's vision influenced participants' efforts, evaluations and decisions, and that the two shared purposes generally worked in tandem rather than in conflict with one another. Participant beliefs regarding the use of the click-track technology as well as the impact of the condition of spatial distance shifted most dramatically in this process, from being considered antithetical or disruptive to ensembling to being critical. Finally, by relating this analysis to our theoretical and prior understanding of ensembling, I propose new insights into how ensembling is performed. I discuss several methods of ensembling that appeared in this process that are similar to methods performed in natural conditions but with some variation, and a set of new methods that emerged in this process, which are candidates for addition to our evolving understanding of ensembling. New methods include the struggle phase, episodes of close physical proximity, and new ways of working with the click-track to support ensembling that I call "subliminal technology."

Three main discussions follow: In the next section I discuss why I used this approach to interpreting the work process and introduce the concepts of *iterative work* and *trystorming*. In brief, trystorming combines the practices of brainstorming and prototyping or enactment, enabling groups to try out ideas quickly. In the second main section, I discuss a series of episodes in which participants trystormed different responses to new constraints and evaluated their outcomes. As stretched conditions were introduced in stages, this approach enables us to consider responses to each new constraint in some degree of separation (if not isolation) from other new constraints. I depict responses to each constraint or set of constraints in a series of diagrams, in order to consider how conditions, responses, methods and outcomes interacted in each example. In the third main section, I relate these observations to theory, and discuss findings and make some preliminary

observations about how work groups ensemble, and how processes of ensembling interact with conditions and are influenced by participant beliefs. I then look forward to the next chapter, in which I will present an alternative analysis that adds to understanding proposed in this chapter.

GENERATING AN ITERATION-BASED ANALYSIS

> *...what might appear from the outside to be an incoherent kind of continual exploration and discourse and debate and divergence is my natural territory. That's what a quartet should feel like, to me.*
>
> - Paul Robertson, *Towards Silence* project leader and first violin, Medici String Quartet

When I interviewed Paul following February's pre-rehearsals and asked him to reflect on the work so far, he described a process that lacked, or appeared to lack, an ordered structure, while assuring me that this was work-as-usual. In his assessment, they had "got past the most uncomfortable, incoherent stage" during those two days, which "all new works have to go through." He differentiated quartet work from the kind of work an orchestra would engage in, characterizing the latter as disciplined and proficient, and probably generating "a better result quicker". Paul contrasted the order that might be in evidence in orchestral rehearsals to the work I hade just witnessed, using the words above to describe the latter: incoherent, exploratory, divergent, involving discourse and debate. He credited work processes that unfolded in this way with cultivating a higher level of attention and shared commitment, and the quartet musicians themselves as comparatively more "capable of independent action." But he described the route to that outcome as "lumpy."

While Paul suggested disorder and divergence, features of the work I will explore further in Chapter 7, I also perceived an order to the process from my vantage point as observer. I formulate this order by considering their work as an iterative series of explorations, each aimed at addressing the dilemma posed by the task: to perform as an integrated ensemble while seated apart. This structure might have been but was not necessarily something of which the musicians were aware and on which they could have

reported from their experience within the work. What they thought they were doing as individuals and what they did collectively could be very different, and different musicians had different experiences of the process in which they were engaged. For this reason, I base my analysis of the process structure primarily on observation of the work, prioritizing this data, and supplement this with interviews in instances when informants helped to clarify actions and decisions I witnessed, and to help me understand how they made sense of these decisions (Barley and Kunda 2001).

Iterative processes are common to creative work, in which the cost of experimentation is low, and the benefits of novelty are high (Austin and Devin 2003, 2010). A work process is iterative when design (determining what to make) and production (making) are combined in the same activity. In contrast, sequential work processes are arranged so that expensive design activities (which may in themselves be iterative) happen up front, and production proceeds after design is complete; typically one group of people perform the work of design and another group perform the work of production. Sequential production processes are managed to exclude experimentation and reduce variation in outcomes. In iterative work, the team actively generates variation throughout the process. They construct artifacts [i.e. prototypes, rehearsals] as early as possible in a making process, then use what they learn from each artifact to make the next "version" (Austin and Devin 2010). Teams execute this cycle repeatedly, and each effort becomes material for the next. Iteration allows many ideas to be tried out rapidly, and learning is quickly integrated into the emerging outcome. It is an exploratory process that thrives on bringing divergent, even conflicting ideas, into dialogue. Artists and other creative workers interested in generating unique and customized outcomes that surprise expectations organize their work in an iterative way (Schrage 2000; Thomke 2003; Austin and Devin 2003, 2010; O'Donnell and Devin 2012).

As discussed in Chapter 3, string quartets including our informants design their work process to be iterative and to generate emergent outcomes in normal conditions. Choices once made are open to continual revisions of opinion; even performances are considered by Paul to be rehearsals for the next performance (Austin and O'Donnell 2007: 7). The outcome is never fixed or finished. Each time quartets play a piece of music, they play differently, and they arrange their work to generate difference. If they instead aim to repeat a prior performance, they have a quality problem—they are no longer doing their

work as string musicians to push beyond technical proficiency and achieve spontaneity and artistry (Austin and O'Donnell 2007: 10). Paul framed *Towards Silence* rehearsals in February as "semi-pre-rehearsal" and anticipated that when the project group reconvened in June, after spending time in the interim rehearsing as independent quartets, they would have to "start all over again", but that starting over would be "from a higher place." Experience accumulates, new information is assimilated, and the starting place for the work changes continuously. Meanwhile, the process allows for continual exploration, divergence, discourse and debate—qualities Paul considers his "natural territory."

The iterative work episodes I describe in this chapter were neither planned in advance nor implemented by a leader, though some ideas had been considered in advance as options to raise as needed. Rather, iterative exploration emerged through member suggestions followed by collective discussions and evaluations—processes of "discourse and debate". At different moments in rehearsal, some members were more active or influential in setting the agenda for exploration than others, and for different reasons. Paul, for example, as the "project leader" and person who had invited the other UK quartets to participate in the project, was considered by participants to be leading the work in the UK, in terms of how rehearsal time was used. Within that time, he influenced agendas both intentionally and unintentionally. For instance, during the first day of pre-rehearsals in the UK, a three-part structure to the work emerged on the basis of what Paul did, though he did not deliberately design the process in this way. He led the first phase of work as a conductor, then left rehearsals to rest (due to illness), then returned to the work as a violinist within the group; each act created a different set of conditions influencing the group's work. When I asked Paul about these three phases in a later interview, suspecting he may have created this structure intentionally, he expressed surprise and was curious to hear how they had used the time in his absence.

Even when certain individuals played a leadership role, they were not necessarily aware of determining a structure for rehearsals; sometimes they were unaware they were "leading" at all. This was particularly evident in the US, when Medici String Quartet members Cathy Thompson, Tony Lewis and Ivo Jan van der Werff shared organizational leadership actively, but frequently expressed unawareness of their leadership influence when I asked them about it. Paul at times resisted the role of leadership, to make space for more balanced group engagement—the discourse and debate he considered work as usual

in quartet playing. While this worked to some degree, and in part due to the limitations his illness placed on his ability to consistently perform leadership, his charisma as a leader was inherently in play. A cameraman filming a day's rehearsal described Paul's leadership to me as a "top dog" phenomenon—he enters the room, gets to work, and all the other dogs follow his lead. Perhaps Paul's best effort at resistance was his absence in the US. In the US, the other members of the Medici Quartet shared leadership amongst themselves and with the other quartets, and the group experienced more balanced involvement in setting agendas and debating what to do next. [59]

While I re-iterated the aim of performing as "an integrated ensemble" above, and I have just spent Chapter 5 exploring what ensemble means to these musicians, let's consider this aim as contestable to start, a claim Paul made early in the process, but one that has yet to be evidenced in the work of the group as a whole, to see if it is a shared objective. While his use of the word "ensemble" might indicate a desire to achieve an emergent quality of communion, he may also have used it here to describe a first-level effort towards ensemble: to perform together as a unit, in perfectly synchronized time (as discussed in Chapter 5). We may expect ensemble to matter to participants in stretched conditions, as it does in natural conditions, but let's see if our expectations are met. I'll look at the work of the quartets first, what they did, then use these actions and their evaluations to later consider why they judged certain efforts and routes more appropriate than others, and what those choices and evaluative criteria teach us about their larger objectives for their work together.

Trystorming

I borrow the term "trystorming" from a process innovation team called the "Moonshine Shop", working at the Boeing Company (Austin, Nolan and O'Donnell 2007). This team uses trystorming to rapidly test approaches to improving processes at low cost. As the activity of brainstorming suggests generating multiple, often divergent, ways of addressing a problem or opportunity, trystorming takes this activity further by actually trying out those ideas through rapid and rough prototyping or enactment. In the Boeing context, this amounts to building "quick and dirty" prototypes out of cheap, often scrap or abandoned materieals

[59] I discuss the impact these different approaches to external leadership (as differentiated from *internal* leadership performed within the process of playing music) had on the US and UK work processes in Chapter 8.

(e.g., plywood). In string quartets, the analogy is, of course, to rehearsal. Creative groups that practice trystorming, whether on the factory floor or in the concert hall, include in their exploration wild ideas as well as more conservative ones, without censoring themselves too quickly, in anticipation that by doing so they will discover viable and innovative possibilities that might have been judged impractical in theory. As we will see in the case study, the musicians rejected in theory some strategies for addressing increased constraint, which they later tried out of desperation, and learned by trying that those strategies resulted in a different outcome than anticipated.

Diagrams

My first effort at diagramming these iterative episodes happened in the form of a spreadsheet, in which I categorized trystorming activity first by the changing conditions in play (the conditions being "stretched"), then by the participants responses to these conditions, finally describing the behaviors exhibited in each iteration of the work and the kinds of outcomes that emerged. Later structural development of these diagrams, in the form in which they are presented here, was informed by Edmondson's model of team learning (1999). I tried out this structure on data to see if it was a productive way to increase understanding and found it fruitful. This form allowed me to consider relationships between changing conditions, behaviors and outcomes, as I observed and as participants' expressed their own perceptions of them. The diagrams helped me to consider how musicians weighed potential responses to constraints in regard to anticipated outcomes, made decisions on this basis, and how their expectations and beliefs evolved over the project life. This diagramming exercise led me to consider as well what other influences were in play, particularly what shared beliefs intervened to influence decision-making, which led to useful discovery.

I might have done this analysis without the use of diagrams, and simply described the series of responses tried and what we learned from each. However, I found the diagrams as visual summaries to be useful tools for accumulating learning from this study. They are essentially a short hand way of summarizing the actions and emerging beliefs I observed. They also lend themselves to being integrated and compared with the theoretical

framework of ensembling (as I will do in Chapter 8).[60] As I experimented with diagramming, I let the data lead, and preferenced data when it challenged the framework—the form evolved in tandem with analysis. As I moved deeper into the analysis, I found limitations as well as benefits in my evolving diagrammatic descriptions, a sense that other representational forms might open up important interpretations. This sense led me to an urge to move beyond the diagrams, to access additional and alternative insights. And, although I tried setting this diagrammatic approach aside completely, in the end I have settled on a research approach that first employs the diagrams and then attempts to move beyond them, in an effort to transcend the interpretations they make available. I use the diagrams in this chapter to generate one kind of understanding of this work, an understanding that I believe is well grounded in how participants experienced and talked about their work. Later in this thesis, I critique this analysis, and open it up to other sorts of movements.

DIAGRAMMING ITERATIONS TO GENERATE FINDINGS

In this section, I'll look at how participants responded to the introduction of variation in conditions, as they were "stretched" in stages by the phases of this exercise, and trystormed different possible responses to see what would work. We know how the quartets prefer to work in natural conditions, as groups of four. They arrange themselves in close physical proximity, with approximately 8.5 feet as a maximum distance between any two members (see **Figure 6.1** and **Image 6.A**), those two being typically the first violin and the cello in British configuration, or the first violin and viola in American configuration. As an ideal, they engage in the methods of ensembling discussed in Chapters 2 and 5, with the aspiration of increasing the likelihood that ensemble will emerge. While we might expect that their usual ways of working in natural conditions would inform the musicians' responses to stretched conditions, we can't be sure those ways of working will be suitable responses, just as they were unsure when they started this project work if and exactly how they would be able to pull off this new task.

[60] At one stage, these diagrams and the theoretical framework shared a common form, supporting easy integration. The form of the theoretical framework has since evolved to reflect more a more complex, emergent, multi-directional structure.

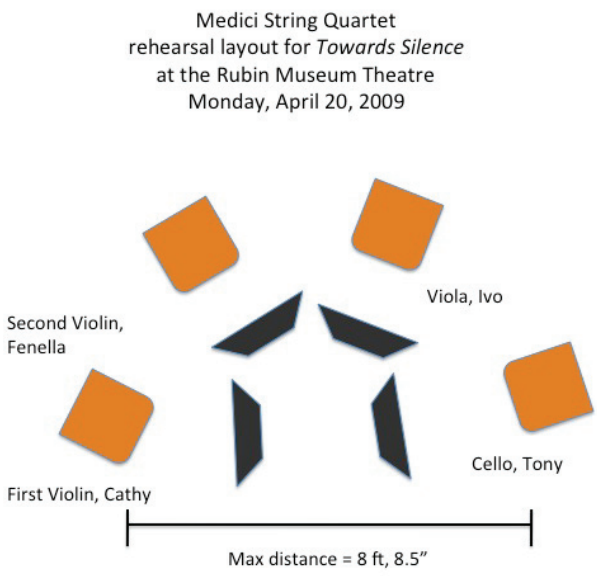


Figure 6.1: Medici String Quartet configuration;
maximum distance between members 8 feet 8.5 inches

Image 6.A: Medici String Quartet configuration, Rubin Museum of Art, New York City

As I discuss each of these responses, I'll consider both the US and UK group's efforts side by side. In some cases, learning was carried over across phases of the project and between groups. In other cases, the groups experienced conditions and formulated responses differently. These differences help us increase understanding. I will also point out moments in which the musicians seemed to be working with these frameworks in mind, expecting certain behaviors or outcomes to result from decisions to implement responses to changing conditions. Again, we expect prior experience and ways of working in natural conditions will inform their work together, and that ensemble will matter to their work, but we will consider those expectations contestable until we explore the data.

STRETCH #1: Stretching the size of the group

The first "stretch" involved an increase in group membership. The score called for four quartets to play as one ensemble, enlarging the size of group with whom string quartet musicians are accustomed to working from 4 to 16 members. Taken alone, this condition simultaneously increases the distance between furthest members, even when musicians arrange themselves in the closest possible configuration (see **Figure 6.2**). Medici violist Ivo joked with his colleague Tony, saying that they are now working with "16 egos instead of 4," and that rehearsing with 16 opinions in the room made the process "four times as bad." Attacca second violin Keiko described the difference in the kind of contribution she believed you could make as a member of a larger group:

> I think musically, when we are playing in a string quartet, it's basically four very strong individuals playing together, making one thing…But with this piece, you are just 1/16th of the entire universe, basically. So what we are supposed to do, or what we can offer is quite different. It's not much about who you are, it's more about what you can do as part of the community.

As they proceeded to work in a larger group, participants were learning how to adapt not only to the increase in distance between members and the increase in voices/volume, but also the increases in egos, ideas and the shifting contributions they could make given that changing constraint.

Along with this stretch in membership comes a shift in group tenure. As I discussed in Chapter 2, enduring, as opposed to limited, group tenure, has been shown to have a beneficial effect on group efficacy (Edmondson 1999): over time, the "social processes the team uses in carrying out the work enhance members' capability to work together interdependently in the future" (Hackman 2002: 27). As evidenced by the work of string quartet musicians (Blum 1986, Steinhardt 1998, Peat 2000), groups that work together repeatedly "become highly skilled in coordinating their activities, anticipating one another's next moves and initiating appropriate responses to them even as those moves are occurring" (Hackman 2002: 27). As discussed in Chapter 5, informants also indicated that enduring tenure contributes to strengthening a group's particular methods and capabilities for performing ensembling, and as Ciaran suggests in the opening of this chapter, increases the likelihood that they will be interested in ensembling in this situation. Group tenure varied across participating quartets, from 37 years to 7 years to newly formed, so groups benefited differently from shared experience: some were more coherent and capable of unified action than others. The *Towards Silence* participants as a larger team were working together for the first time. While they believed that enduring tenure within their own quartets served them at that level of organizing, the organization of the larger group was being attempted without the benefit of prior work together.

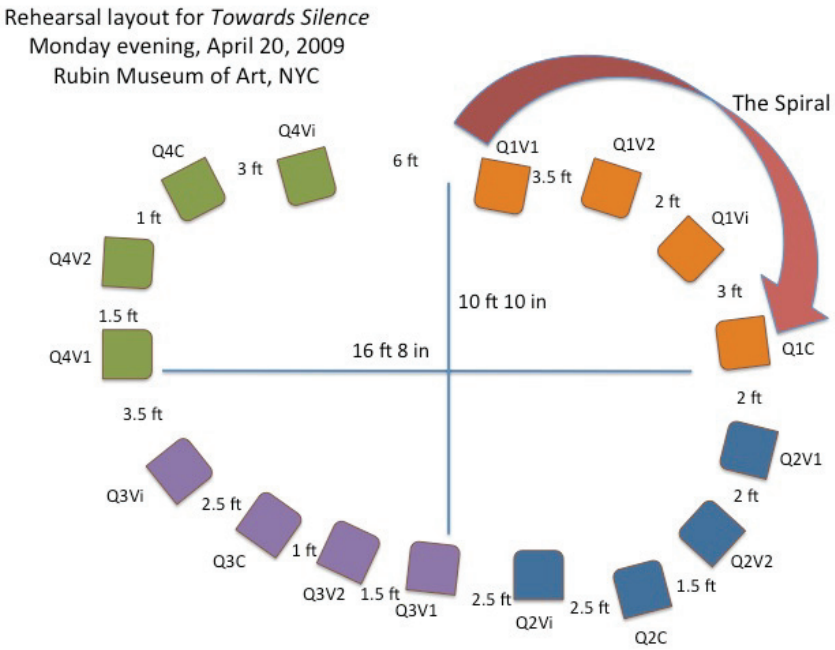


Figure 6.2: Full group rehearsal configuration; maximum distance between members approximately 16 feet 8 inches (further, if measured on diagonal).

Another feature of this stretch in group membership is an inherent increase in task complexity. As Ciaran described in the opening of the chapter, it's one thing to be able to perform as one in a group of four, "but it's a challenge then to have that other level" in which all sixteen musicians are trying to make one sound. The sheer volume of voices in the room contributed to an increased sense of chaos. More voices needed to be coordinated and integrated into dialogue. Preparation became more challenging as well. While quartet musicians might be accustomed to rehearsing their individual part while reading the parts of their three colleagues, they found no way for any one of them to read 15 other parts in a score as they practiced their own, or 12 other parts as they practiced in their quartets, for that matter. As participants addressed increase in group size and shifting tenure, they were also addressing the difficulty of increased task complexity.

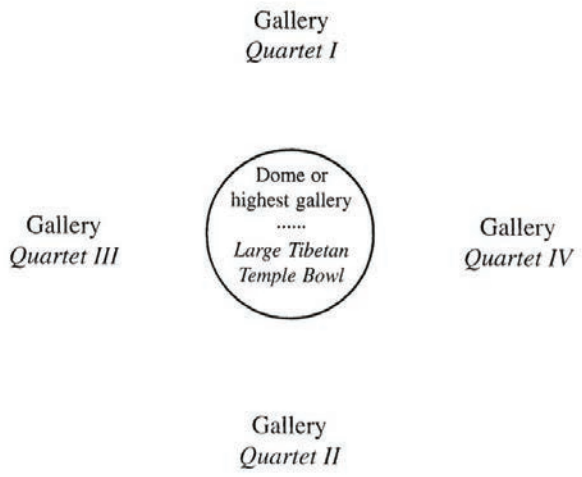
First response: Configure group in a circle, but reject as a long-term strategy

The musicians in both the UK and US began their work seated in a circle or semi-circle. This configuration afforded them the best opportunity of seeing and hearing one another, and limited maximum distance between any two members at approximately 17 feet, or about twice the distance experienced in natural conditions. In anticipation of performing at greater distance from one another in concert venues, they might have simultaneously introduced additional increased distance, though they did not. In the UK, Paul argued for this choice on the basis that he didn't know any other way begin work. He explained:

> …until we actually know the score well enough to be able to play it with *complete* confidence sitting in a circle, there is no way we can attenuate the connections or the lines of sight – because it's not just visual, that's the trouble, you actually have to hear it.

Alternatively, they might have arranged their chairs in four clusters of four. A diagram in the introduction to the score presents this configuration, the four clusters arranged in a cross formation (see **Image 6.B**). Indeed this was how the UK rehearsal studio was set up when I arrived on the first day of rehearsals. Paul's family had prepared the space in this way, at his direction, a choice he explained to colleagues: "I've always spent my whole life thinking of quartets in fours." However, within six minutes of starting rehearsals, the musicians reconfigured the chairs to form a semi-circle (anticipating an opening for a conductor, an iteration we will discuss next) that quickly morphed, over the course of the day, into a full circle. This configuration made them, in the words of Q4's viola player Drew, four quartets working within "a big quartet."

Performance Layout



Towards Silence should be performed in a resonant building, with the Tibetan temple bowl placed in the dome (if available) or highest gallery. The positioning of the quartets will vary with the building, but as far as possible they should play from raised galleries equidistant from each other, sounding from above the audience.

Image 6.B: Configuration as described in *Towards Silence* score

Working in while seated in a circle afforded many opportunities. As Paul described, they needed to hear the piece before they could begin to introduce further interruptions. Seated in close proximity, the UK quartets used this time primarily to "feel" and establish a shared sense of the inner pulse of the music collectively as a group, as they played, as one way of synchronizing their work together. In both the UK and US, the musicians addressed synchronization by "mapping" the structure of the piece, sorting out leads (noting these leads in their score) and playing passages one, two, or three quartets at a time so that others could better hear what to listen for and "grab on to." They marked moments where they should take breaths together between movements, and discussed how they should interpret Tavener's idiosynchratic notations in the score (i.e. "shimmering"). Though it took the UK quartets longer than the US quartets to get through the foundational preparation to more musical work, both groups also addressed how to differentiate dynamics (differentiation was not provided in the score) and how to modulate and balance sounds in relationship to one another. They also made aesthetic decisions together about bowing as appropriate: in

some cases for the quality of sound the bowing produced, and in some cases for the purpose of unified action.

While they experienced some limitation in the degree to which they could hear every other member of the group, particularly those less proximate, given both the increase in distance and in number, and it took longer than usual to get the piece "fundamentally right; played at the right time" together as a larger group, the musicians were generally able to engage in usual behaviors and methods, with some modification (see **Figure 6.3**). New strategies included isolating groups to coordinate in stages and more explicit discussion than usual of which musicians should give leads when. In the US, this configuration became a preferred configuration for rehearsal, and a configuration to which they frequently returned for "tuning" the ensemble, even after they began to rehearse in the Spiral staircase at increased distance and with the click-track, suggesting that episodes of work in close physical proximity and without technology helped them perform better in stretched conditions. However, the UK group was less satisfied with working in this configuration alone as a way to prepare for concerts in multiple venues, and tried additional strategies simultaneously to help them organize their work together, iterations we discuss next.

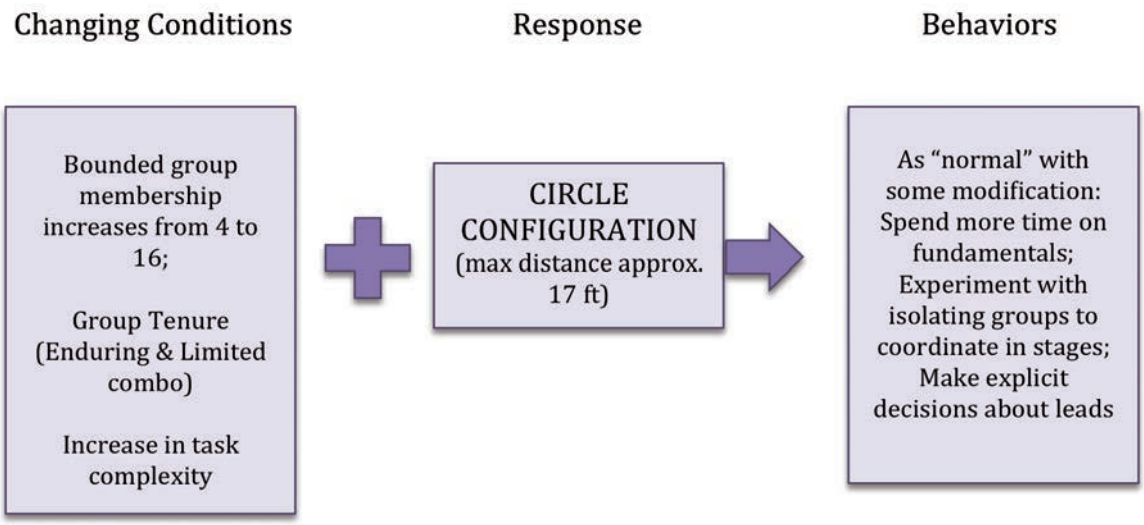


Figure 6.3: Circle configuration enables ensembling behaviors with some modification

Despite the benefits of using this configuration as a temporary strategy for addressing new conditions, participants in both groups did not consider it a suitable

solution for performance. Tavener's composition requires distance between quartets. Not only did the composer call for this distance in his score and producers ask for spatial distribution according to the architecture of each concert venue, but in later iterations the musicians discovered that being seated too close to other quartets caused them technical and aesthetic difficulties as well as being seated too far apart. In too-close proximity, it became harder for them to distinguish one quartet from another and hear the music properly. Lydia, Q2's cellist in the UK, called it "annoying" to be seated close to quartets she had become accustomed to hearing at a distance, as rhythmic conflict between parts could put her off beat if she listened. It similarly created a "muddled" sound experience for the audience. For these reasons, they rehearsed in this configuration as a temporary strategy only, rehearsing behaviors that would support work in distributed conditions, without becoming dependent on it as a condition of the work (see **Figure 6.4**).

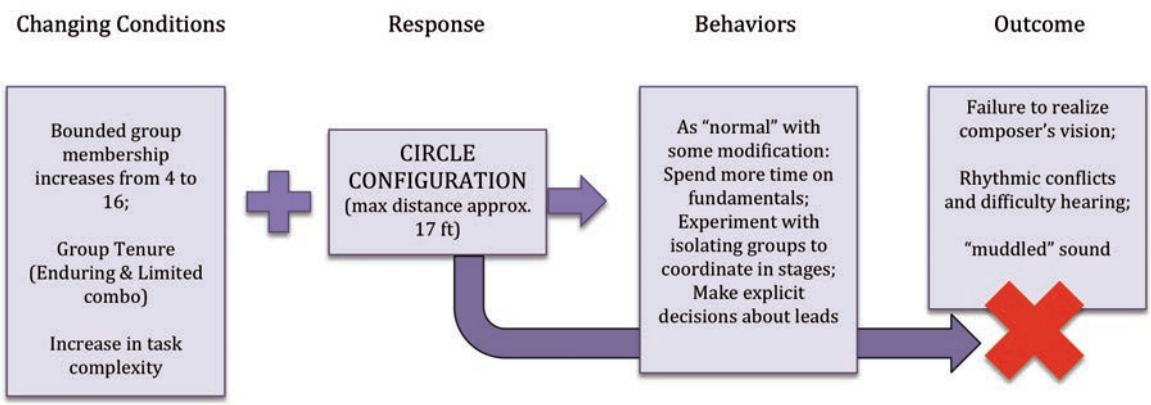


Figure 6.4: Circle configuration rejected as a performance solution

Second response: Try conductor as a short-term strategy

> *As the three UK quartets in attendance settle in to begin work, Paul sets up a score and music stand in the center front of the room and suggests to Q4's violist that he'll just "beat time." He moves to the piano to help the musicians tune their instruments, and asks Cathy to play first violin in his place, since he isn't feeling well enough.*
>
> *"Do you want to just sit here then [in your first violin chair], or conduct?" she replies.*

Paul suggests they "just start that way," with him conducting, explaining to Cathy, "because I just tried to pick the violin up, and it's useless."

"Sit in the front chair and beat us through it, and talk us through it, maybe," replies Cathy.

"Just for the sake of rehearsal," Paul qualifies, addressing the Q3 violist to his right. He asks the group, "Where should I sit or stand…If I beat time a bit?" He moves towards the chair and music stand he's already set up in the front of the room.

When Q2 arrives 15 minutes late, and the musicians break and reassemble to start again, Paul frames his participation: "So I suggest that what we do is literally, only because I can't play at the moment, is have a go, and I'll do my best—[he gestures as a conductor]. I hate conductors and all the things they represent, so don't look at me like that. I'll just wave my hands in the hopes that it gets us through initially. Then we'll start trying to work out how to put in leads and things necessary to make an ensemble."

He uses a metronome to find the pulse, then proceeds to conduct from a semi-seated position.[61]

This trystorm effort happened a bit by default. Paul wasn't feeling well enough to play, and so decided, after getting buy-in from his colleagues, that he would "wave his hands" as an informal conductor, to help them get through some foundational work—primarily playing in time—in rehearsals. The attitude he expressed towards conductors suggested to the group that this option was not to be seriously considered as a solution to the difficulty they anticipate in playing together at an increased distance. Rather, they used it as a strategy to begin to coordinate and practice the music, until they had achieved enough understanding of the score to work differently; Paul perhaps considered it necessary to begin in this way. Even as he conducted, Paul reminded them to make notations in their score of those moments in which they should be giving the lead, and when another quartet should be giving the lead, mapping the structure for a collective approach.

[61] Quotes transcribed from video.

The exit from this strategy of address unfolded in a similarly casual way. Paul left rehearsal to rest. Drew asked Tony to conduct in Paul's place, but Tony didn't take him up on the idea. Instead, Cathy and Tony made some efforts to direct the group's work from their seated positions, and others chimed in. When Paul returned to rehearsals, he sat in his first violinist's chair and joined the group as a musician. The group never made an explicit decision to stop working with a conductor, neither did anyone object to this development, though they did express some variation of opinion in later interviews and conversations.

According to Q4 first violinist Simon's perception of events, Paul intentionally avoided the conducting strategy. He interpreted Paul's action, along with his own experience of structure in the score, to suggest that the piece was better served by a quality of "anarchy". In an interview, Paul called working with a conductor "antithetical" to quartet playing, as well as to the "nature" of Tavener's composition. He declared, …"[I]t would be grotesque if there was only one person leading…The music demands the initiative from [many]." While he initiated the approach of one person leading, he framed it as a practice tool. Meanwhile, he believed over time it would lead to the wrong kind of behavior: a lack of individual initiative. He considered it an important distinction between quartet playing and forms that use a dominant leader such as orchestras that the musicians are capable of independent action and do the work of sorting out leadership together, as then their work "has a quality of ensemble." Ultimately, he argued, there "needs to be and should be and has to be leadership from every individual at different times." Working with a conductor in the long-term jeopardizes that behavior and limits the range of self-expression possible (see **Figure 6.5**).

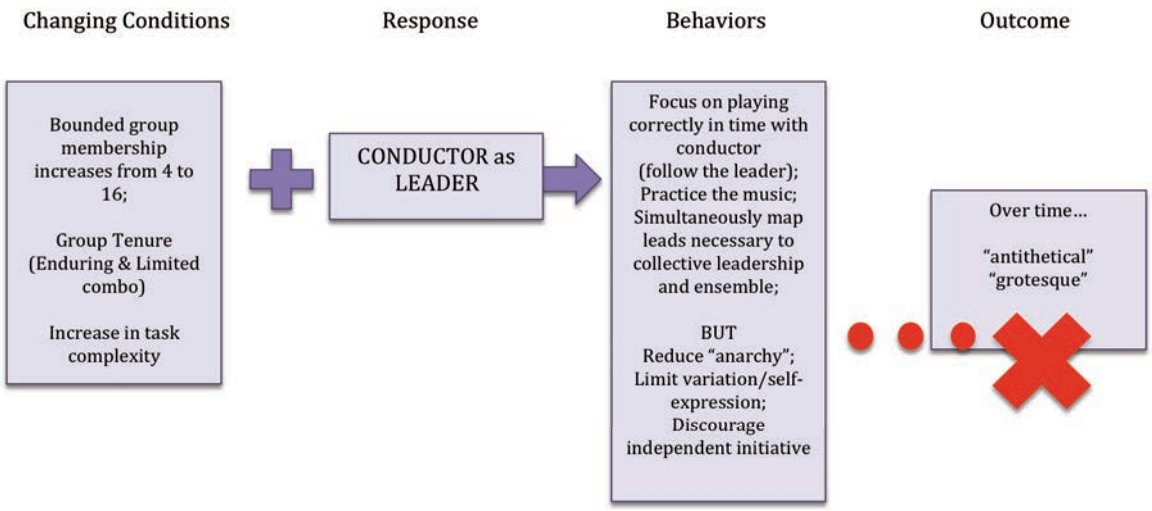


Figure 6.5: Conductor "antithetical" to ensembling in the long run

Despite Paul's attitude towards working with a conductor, it seems a reasonable approach to address the conditions of increased group size, limited tenure, and task complexity. We expect musical groups to use a conductor when membership increases; group size one of the defining differences between an orchestra and a chamber music ensemble. Ciaran, Q3's second violinist, described the main challenge in early UK rehearsals as managing a good atmosphere in the room given "just the sheer amount of people there." He pointed out that the usual way of addressing that challenge would be to have "one person directing," though he appreciated the alternative that was unfolding: "But it's nice that we all…feel that we can contribute too," he said. In an interview with his Q4 colleagues, cellist Jonathan made an argument in favor of a conductor for reasons of efficiency:

> …if there was just one person, i.e. a conductor—which is why orchestras have conductors sitting in the middle—then [we could work more efficiently]. You know, if an orchestra didn't have a conductor, it wouldn't be efficient.

Jonathan later told me that given the limited time in which they had to rehearse this project, he would have preferred to work with a conductor. His prior experience of ensemble occurred in a student orchestra of approximately 30 members, so he didn't necessarily consider working with a conductor to be antithetical to experiencing ensemble. However, his prior experience included conditions and behaviors that were not part of the *Towards*

Silence project work: members of that orchestra had worked together for 2-3 years, spent that time deepening their relationships with one another, and engaged in "grueling hours" of rehearsal. These efforts contributed to an experience of ecstasy that lasted "two bars" (see **Figure 6.6**).

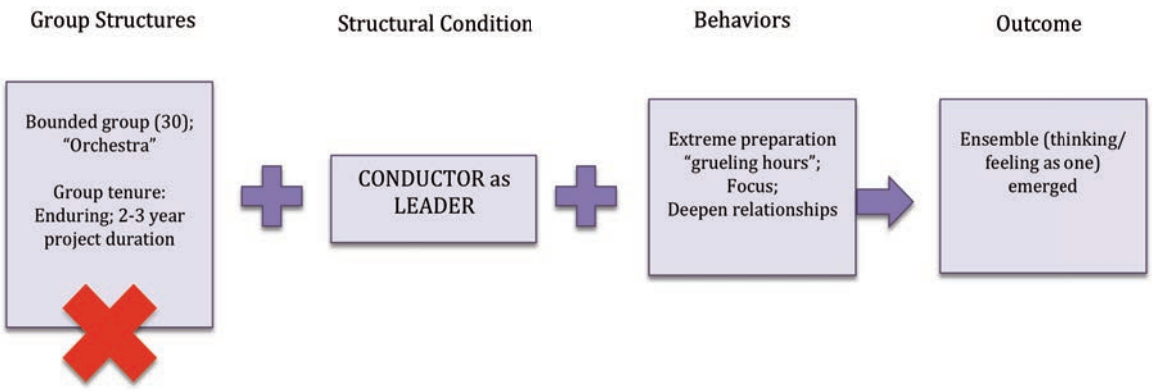


Figure 6.6: Conductor might lead to ensemble, given different group structures and behaviors

While project participants attempted to deepen relationships with one another and engage in intensive preparation, they lacked the conditions of group tenure and project duration to support this model. Interestingly, the US quartets, who were comparatively better prepared, and as quartets enjoyed longer tenure than their UK counterparts (the benefits of which support Jonathan's theory), neither suggested nor tried working with a conductor.[62] They tried out collectively using some conducting gestures to relay cues (an effort we discuss later). But they began and continued their work by sharing leadership initiative. Being that Paul was absent from this phase of the project, we can't know how he might have addressed this beginning differently.

[62] I generate findings on the methods and conditions that support ensembling by making comparisons between the US and UK groups in Chapter 8.

Third response: Try metronome as a short-term strategy

> *About eight minutes into rehearsal on the second day of the UK pre-rehearsals, Paul asks if anyone has seen his metronome. When it's recovered, he uses it briefly to check tempo. A few minutes later, he asks the group if they can "face" working with the metronome for while, and they agree to it. After a few minutes working with it, Paul suggests they shouldn't go on with it, saying, "It's a bit boring." But as rehearsal proceeds, they pick it up again now and then to help them practice the music.*
>
> *A problem arises in that it's difficult to hear the metronome when they're all playing, the quantity of instruments increasing the quantity of sound. Paul suggests playing the metronome over the amplifier: "It's pretty painful, but I think it's one of those things that might save the day." Through the remainder of the day's rehearsal, he continues to give the musicians the option of working with or without it, and they end up electing to spend more time working with it than not.*

While the conductor was generally understood to be a temporary device to help them begin to practice, the metronome was considered *only* as a rehearsal tool. Participants used it to help them establish an external tempo and to learn to play together correctly at that tempo, until they were well enough prepared to play without its aid. They worked with it in this way, differently than the way in which Paul described Medici sometimes used a metronome to "destroy the music" by playing infinitely *out of time* with it, generating variation and raising their collective level of attention (Austin and O'Donnell 2007; see also discussion in Chapter 5). While participants reported that working with a metronome helps them make progress in understanding the architectural structure of the composition during early phases of work, the metronome does not directly generate the kind of outcomes that they are after when used in this way (see **Figure 6.7**). As an external arbiter of the pulse, the metronome inhibits the process of maintaining synchrony as a felt, collaborative accomplishment (Weeks 1996). Participants were not yet engaging in the dialogue and spontaneity that would come from increased mastery of the architectural form and increased attention to relational dynamics. The US quartets, perhaps as a result of being more prepared, did not consider it necessary to work with a metronome to organize tempo, and emphasized activities that instead helped them to converse with one another.

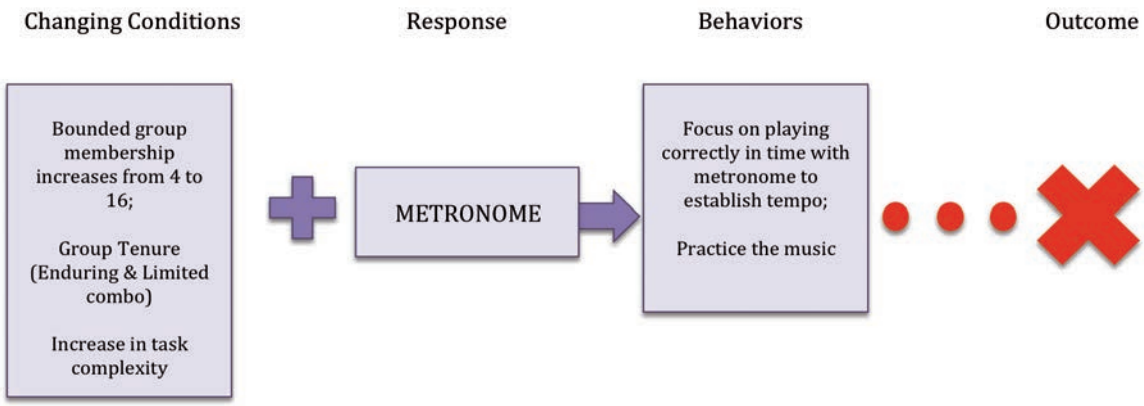


Figure 6.7: Metronome as a short-term rehearsal strategy only; alone it won't get them to the outcome they desire

None of these first efforts were proposed as a final solution to the problem of increased spatial distance and distribution, nor were they considered failures to address new constraints. They functioned to help participants organize their work in the beginning, given the larger group size, limited group tenure and increased task complexity. These strategies were used with care, so as not to encourage long-term behaviors that were dependent on such support and considered antithetical to the musicians' aspirations to collectively lead and engage in dialogue with one another. Participants used these strategies until they had achieved a comfortable level of mastery of the score and begun to build other structures for sustaining coordination and communication in the long run, such as mapping a system of leads. All of these efforts were considered important, perhaps necessary, preparations for work to come.

The two groups engaged in these early approaches to different degrees. The UK group spent more time working with a conductor and metronome, whereas the US group skipped those approaches. In the US, quartets enjoyed longer group tenure and were comparatively more prepared and less dependent on artificial means of coordination, such as the conductor and metronome, so they were able to spend more time engaging in the work collectively. UK participants were less familiar with the score as individual quartets then their US counterparts, so it comes as little surprise that they were more reliant on learning tools to start. In the UK, Paul was active in setting the agenda for rehearsals and

was recognized by the other musicians as the leader of the process, even when he resisted that role at times, whereas his absence in the US may have also factored into the difference in approach. Cathy, who most US participants recognized as the leader of that process, took a more collaborative approach, creating, as guest violinist Fenella described, "a space for everybody to feel that they could contribute." Q3's cellist Andrew agreed: "We've pretty much tried everything that anybody has said." As a result of these differences in conditions such as group tenure, preparation, and project leadership, the US group leapt more quickly to unaided and collective processes of sorting out the work. I'll explore this comparison further in Chapter 8. Next, we consider the second significant "stretch": increased spatial distance.

STRETCH #2: Stretching spatial distance between groups

To understand the difficulty that increased spatial distance introduces into the work of musicians, let's consider how proximity impacts their work. Their ability to work together, unaided by artificial support, depends directly on whether they are able to hear one another in order to play in perfect time together and produce a balanced and integrated sound. Close spatial proximity is a crucial condition of this activity, insofar as it enables the musicians to hear as well as see (or otherwise sense) corresponding visual cues. As mentioned previously, string quartets typically configure themselves at a maximum distance of about 8.5 feet between the two farthest members. Enlarging the size of the work group from 4 to 16 members, as Tavener did, naturally introduces an increase in the distance between each member and the farthest member from them, in this case to about 17 feet. Even at this proximity, given some increase in distance and the increase in number of instruments in play, it becomes difficult for each member to hear every other member. Stretching the spatial distance further by placing participants, for instance, on the landings of a 6-level staircase or at opposite ends of a 70-foot long ballroom, as the diverse event producers did in response to Tavener's directions, increases the distance further, making it more difficult to hear, and now difficult as well to see, every other member. At a certain distance and in certain configurations, the laws of physics make it impossible for the musicians to play in time and produce a balanced and integrated sound, as their hearing becomes distorted by delays related to the time it takes sound waves to travel, further confounded by architectural barriers and echolation.

The first group to play at a distance greater than 17 feet was the US group, which gathered in April at the Rubin Museum of Art in New York City. They had five days to rehearse before the premiere performance. Medici's violist Ivo visited the museum in advance, and committed the group to performing across four levels of the Spiral staircase, the Museum's architectural centerpiece, at the producer's request. In this configuration, distance between the farthest members of the group increased to 36.2 diagonal feet from the first quartet seated on the fifth floor staircase landing to the fourth quartet on the second floor (**Figure 6.8**, **Image 6.C**). The Museum had sold out tickets to the performance based on this configuration. When Medici Quartet members Cathy, Ivo and Tony first arrived at the Musuem and toured the Spiral with Producer Tim McHenry, Tony suggested alternative configurations, but was quickly informed that the configuration was non-negotiable.

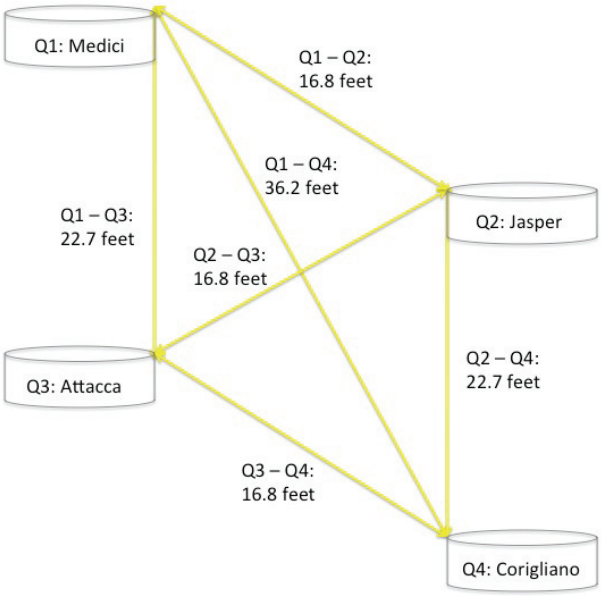


Figure 6.8: Measurements calculated between landings of the Spiral staircase.

Image 6.C: The Spiral staircase, Rubin Museum of Art, New York City[63]

Anticipating the difficulty this spatial stretch would introduce to the work and uncertain that the quartets would be able to successfully address it otherwise, Paul and Ivo had agreed to prepare a click-track. The click-track was a pre-recorded cuing track designed to be distributed via wireless earpieces to select participants; in this case, it had been prepared for the first violinists of each quartet. It is a device commonly used to organize musicians who have little time to rehearse and for music which needs to be precisely synchronized—for instance, in studio recording work for films (Faulkner 1971). As early as the first day of UK rehearsals, one of the musicians had asked Paul, "Has anyone imagined having like a click-track?" To which Paul had replied, "Yes, I am considering creating a click-track…even though I find it a hateful idea." He objected to the click-track, as well as other artificial means of cuing musicians, on aesthetic grounds, as they cause musicians to play

[63] Photo by Peter Aaron/Esto

differently. Nonetheless, he recorded a click-track for the entire score as a back-up plan, a possibility Ivo presented to the Medici musicians and Tim during their initial discussions.

First response: Reject the click-track without trying; develop alternatives

During the first evening and next morning rehearsals at the Rubin, Medici members worked on the problem of distance alone, without the other participants present. During discussion, they rejected the click-track in theory, hoping that instead they would be able to successfully address distance without artificial support. They trystormed some of these possibilities in the Spiral to prove it could be possible. Ivo and Cathy figured out how to use visual cues to coordinate communication with Q4 for a crucial passage in which Q1 and Q4 play together. In a second experiment, Cathy took up the second quartet's part on the fourth floor, while Ivo stood in for Q3 on the third floor. Cathy had to lead every single beat in order for them to stay together, but their efforts worked. The group discussed further options the next morning, imagining a complex relay of exaggerated visual cues between quartets to be communicated via conducting gestures, bow changes, and embodied beats. While some uncertainty remained, they reported to Tim their belief that the four-floor configuration was possible and that they could make it work without electronic aid.

Arguments for resisting the click-track were repeatedly voiced. They were concerned the click-track would isolate each quartet from the others, decreasing their capacity for listening across the divide, therefore constraining their ability to make music together. They anticipated that they click-track would have other aesthetic impact on the music: Cathy exclaimed that the click-track would take away from "the whole feeling of space in the music" and instead be experienced as sharp, punctuated beats, which she demonstrated by cutting the air with her right hand. Musicians make music by listening to one another, and not by listening to a metronome "banging away" in their ears, she argued (see **Figure 6.9**). Ivo even suggested that it didn't matter if they were "not totally *on*" as the score was composed in part as a "dream state", and the audience experience on different floors would vary greatly. He suggested accuracy of timing wasn't as crucial as they had been considering it to be.

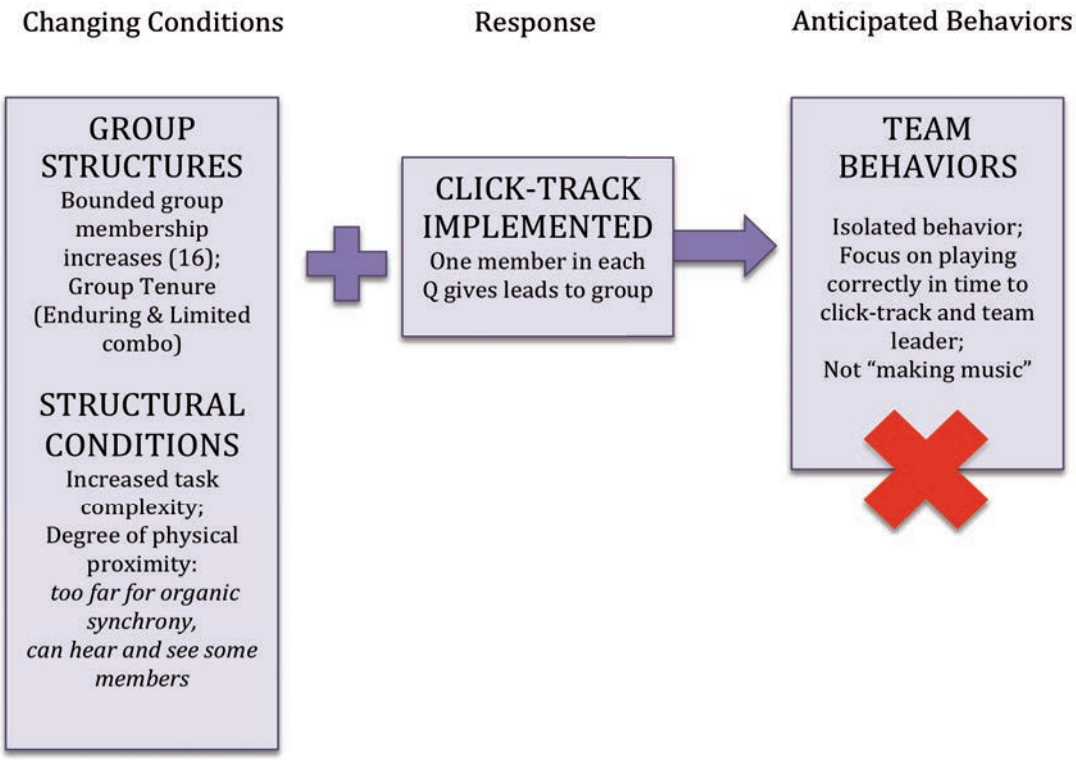


Figure 6.9: Click-track rejected in theory

Despite their aesthetic arguments against using the click-track, there was at least one aesthetic argument for it: the aggressively embodied visual cues on which the organic approach would depend was at odds with the stillness required in several passages within the piece. Cathy insisted they begin work without the click-track to start, but agreed to at least give it a try later in the process. Medici's guest second violin Fenella Barton encouraged the trial, suggesting "it might be fabulous" and enhance their work in some unanticipated way. During their Monday morning break, they met with the Museum's audio/visual technician and made arrangements to try out the click-track on Tuesday, the second day of full group rehearsal.

Second response: Try gestural relay, then reject

> *The musicians are now playing across levels of the Spiral. Q4 is split into two groups of two in an effort to close the communication gap left by the absence of Q3 today. The*

first violin and cello are on the second floor landing, and the second violin and viola on the third floor in Q3's position. [See ***Image 6.D****] The latter pair relay messages from Q2 on the fourth floor landing opposite them, down to their colleagues on the second floor. They do a lot of looking up, then down, alternately, as they play. All four are active in physicalizing the rhythms to sustain coordination.*

The second violin grows frustrated as the larger group tries to address a problem in timing. It's hard for Q4 to diagnose the problem from their position. Sound travels upwards, and they cannot hear the music well enough to determine who is delayed. The first violin thought he was ahead of time, but the viola, one floor up, says he's actually behind. The second violin expresses her concern that they are going to weigh down the music. As they try to sort out the problem with Q1 and Q2 above, the cellist points to the difficulty they are having as added evidence: it's hard for them to even have a discussion in words across the levels, let alone play in time.

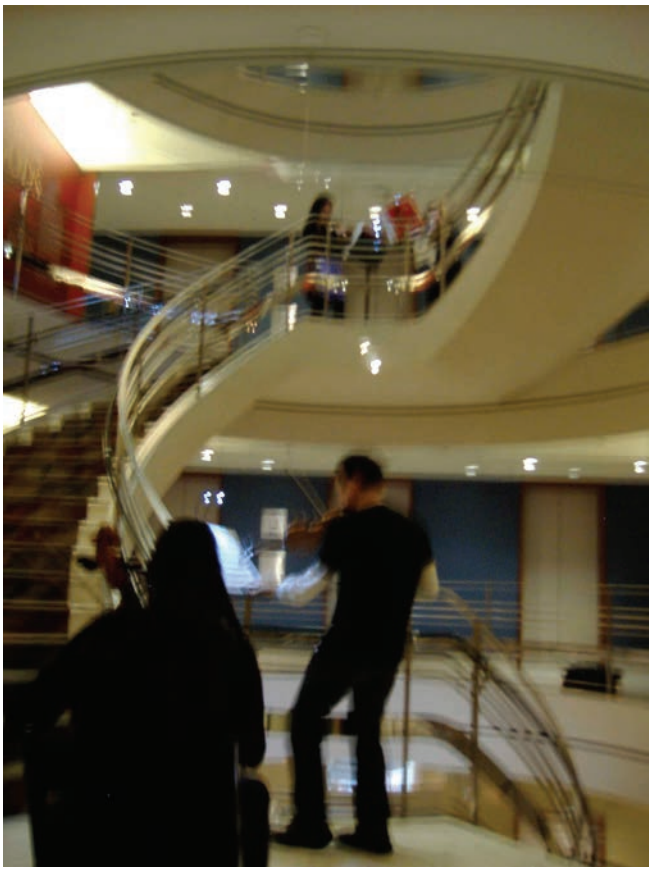


Image 6.D: Q4 cello and first violin in foreground (L to R), on second floor landing; Q4 second violin and viola in background (L to R), on third floor landing; Rubin Museum of Art.

When the American quartets arrived Monday evening, the click-track was not mentioned. Participants, in a manner similar to their UK predecessors, spent the first two hours of rehearsal working in a circle on the ground floor at the base of the Spiral, before migrating upward. For a short while that evening and an hour the next day, they trystormed in the staircase with multiple forms of physical communication, ranging from broad conducting gestures to subtle pulsing torsos. Cues, beats and downbeats were relayed across 36.2 feet of vertical distance. Funny, awkward, at times frustrating, the physicality was meant to remain hidden from the audience, whom the quartets were assured would be seated facing away from them towards the Himalayan artwork on display. Nevertheless, their hyperactive bowing and gestures distorted the music. Still struggling to hear and be heard, the musicians played louder, distorting the music further. Despite their best efforts, they were still out of time with one another (see **Figure 6.10**).

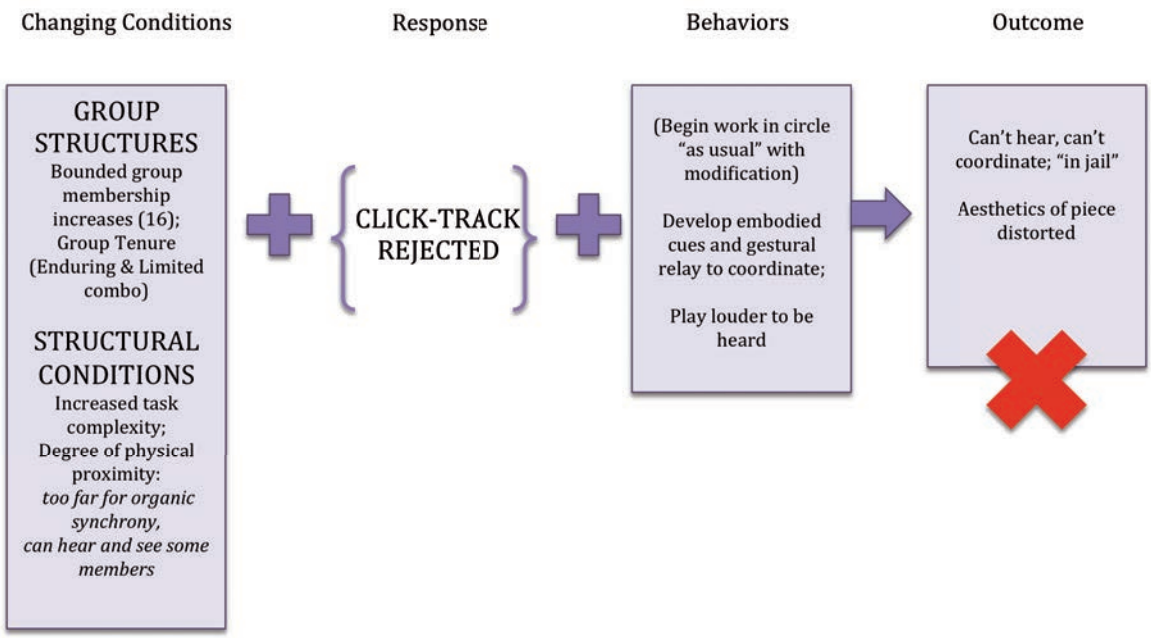


Figure 6.10 Gestural relay fails to address difficulty of distance

As described above, Q4 suffered the greatest difficulty with hearing and being heard, from their position at the bottom level of the configuration. They were the first to reach a break point. Murmurs of distress started amongst their members, then grew until second

violin Lina climbed the stairs to beg the others to at least try the click-track, an option that had been proposed earlier that morning of the second day. Her plea was met with resistance, and a string of arguments against the click-track ensued, an embellished re-iteration of Medici's initial reasons for rejecting it. Cathy expressed her sympathy with these arguments, but also with Q4's plight. The group was persuaded to give the click-track a try, and a new trystorm ensued.

Third response: Try the click-track; reversal

> *Museum technicians visit each floor delivering a wireless earpiece to each first violin. The use of the click-track brings a host of changes to the nature of rehearsal. First, every time the musicians stop mid-score, they have to wait for the technicians to re-cue the click-track before starting again at an agreed upon place. Second, they now work on playing in time with the click-track rather than with one another, and to do this the musicians in each quartet focus on their "leader", the first violin, to communicate the cues he or she is receiving through the earpiece, a new task for that leader. Almost all physicalized and visual communication between quartets ceases. Gestures subside. Cue relay is a thing of the past. Folding chairs spring open, and musicians sit, circling into their own groups, where once they stood at the edges of the landings peering up and down across the divide (*see **Image 6.E**).

Image 6.E: Q3 rehearses with the click-track, on third floor landing.

As we discussed, the musicians had voiced several theoretical arguments against the use of the click-track. They had been concerned that, if implemented, the click-track would isolate each quartet from the other, that they would listen less as a result, that their process for "making music" together would be compromised, and the outcome would be less musical. Working with the click-track would be like working with both a metronome and a conductor: their work would be subject to a rigid external tempo and, given that the click would be distributed via the first violin of each quartet, they would become passively dependent on one member of their group for direction. Each first violin would have to assume a role as a kind of conductor, indicating the beats to colleagues. Q2's first violin J predicted that the click-track would alter the aesthetic of the performance radically, by being a fixed, pre-recorded track that could not accommodate and adjust for the natural reverberation of sound through the space as the musicians could do. He anticipated that they would lose their freedom to play the space with the click-track.

When they implemented the click-track some of these expectations were met, but many were surprised. The musicians discovered that with the click-track's assistance they were able to play in perfect time together and without the loud distortions caused by previous efforts to be seen and heard. As a result, their ability to hear one another improved, and they could listen more. Lina, who had pleaded with the group to implement the click-track, expressed her discomfort with the "military" feel caused by playing with it. She admitted that "temporality" was taken away from the musicians, constraining their range. However, Lina considered it necessary to use the click-track to play tightly together, so that they could shift their efforts to developing balanced layers of sound by listening. Fenella, who had earlier anticipated a possible positive result from using the click-track, observed that the tightness afforded by its use, in these conditions, increased the musicians' freedom: "Now that we can hear, we play." As the quartets played the piece with the click-track for the first time, Ivo stepped out to listen. His verdict: the music sounded better with the click. "Better" was elaborated on by others: "It sounds more clear"; a more "ethereal" effect can be pursued; the audience will hear a more balanced sound. The musicians largely experienced a reversal of expectations: while they did fold into their quartets to play with their "leader", they could listen more. Although their process had altered, they were now able to "play" and produce a more musical outcome.

Not all were in agreement. The tightness enabled by the click-track worked against play in J's perception. He had been actively engaged in creative leadership efforts to coordinate the work while the quartets rehearsed without the click-track, relaying cues between the first and third quartets. In his experience, the click-track took away "the struggle of four voices [or quartets] coming together" to produce a balanced but dynamic dialogue: it changed both the process and special qualities of the outcome. He considered this engaged struggle essential to achieving ensemble, and claimed the music sounded different as a result of the change. As anticipated, the click also made quartet members more dependent than usual, at least initially, on their first violinist, though they hoped that they could alter this dynamic as they continued to work. These contrasting, pro- and con-perceptions are expressed in **Figure 6.11**.

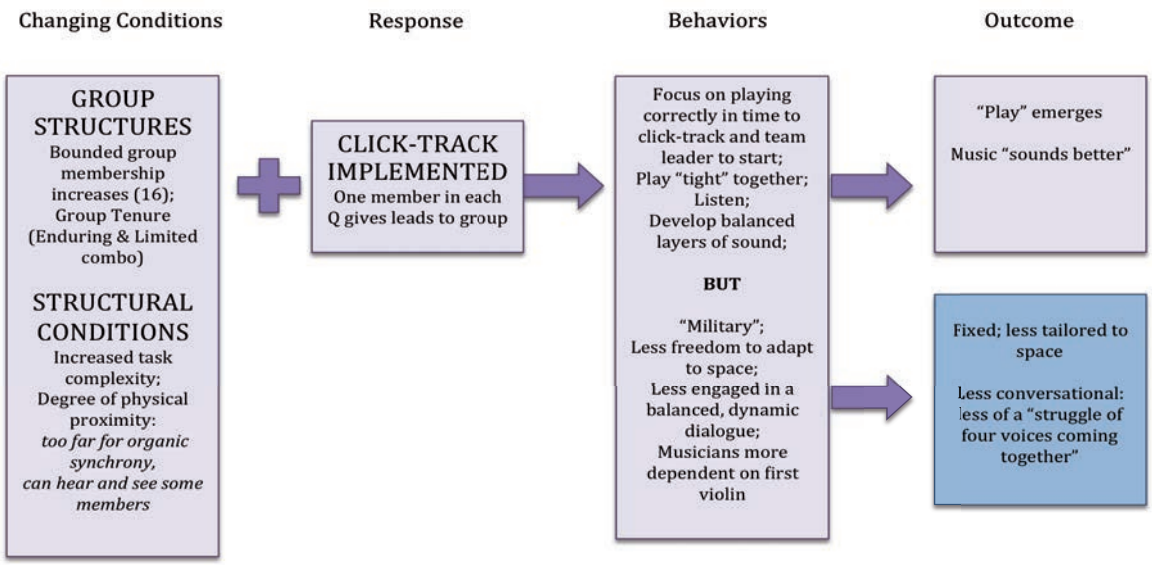


Figure 6.11: Click-track accepted, despite some disagreement; reversal of expectations

After discussions and playing through the full piece with the click-track, the group opinion coalesced around the decision to use it, despite the fact that some disagreement lingered. However, the musicians continued to frequently reconvene in a circle at the base of the Spiral to work together without the click-track, where first violins were released from their duties to conduct, and they all could better listen, hear more "detail", "tune" themselves in relation to one another, ask for and discuss changes, and reach agreement as needed on decisions such as how much vibrato to use. Fenella added that these episodes of close physical proximity afforded people opportunity to contribute more freely to the conversation as equals, "because you can't really communicate in the galleries much, verbally." Several of them also told me that they believed their work with the click-track benefitted from the "struggle phase"—as they called the iteration in which they collaboratively developed gestural and embodied communication to synchronize their work without technological aid. The playful and dialogical relationship they had begun to develop during that period of exploration informed how they now worked with the click-track, countering the possible isolating effect it might have otherwise had. Cathy told me that the US quartets achieved a "higher quality of listening" that she attributed to the struggle phase (see **Figure 6.12**). Over time, as the musicians became more familiar with the click-track,

other changes happened in their behaviors working with it—changes we will discuss further in the next iterations, as well as in Chapter 7, and that will appear in future development of our framework.

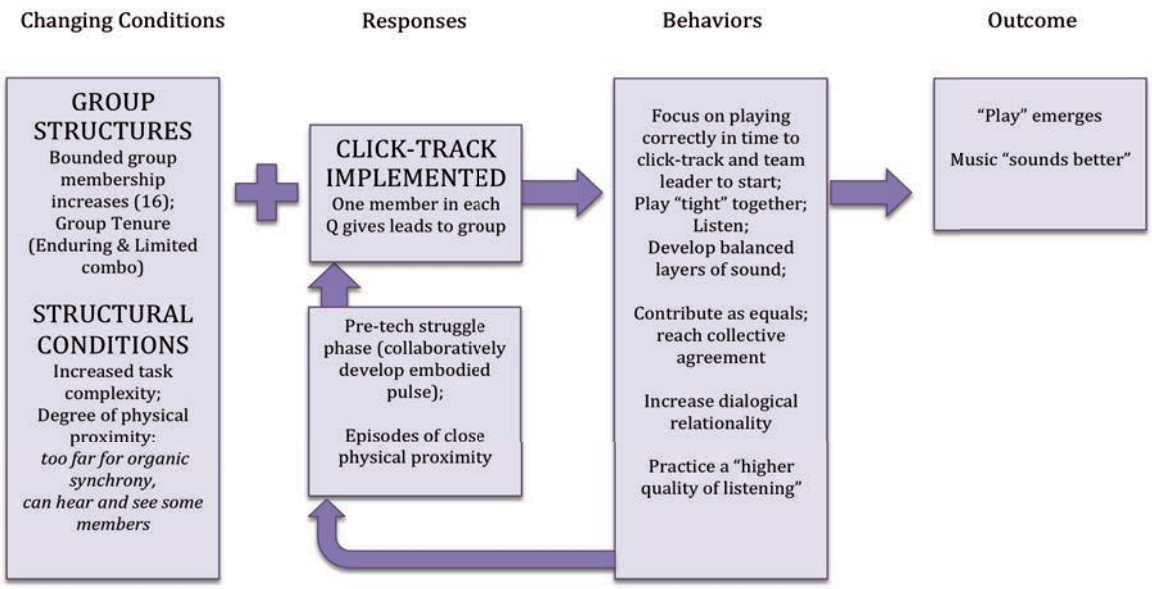


Figure 6.12: Influence of "struggle phase" and episodes of work in close proximity

STRETCH #3: Stretching configuration dispersion

Our last round of stretching involves configurational dispersion and variability. In the third phase of the project, the UK quartets reconvened to rehearse in preparation for performing in four different concert venues—a ballroom, a multi-level house, the cathedral, and a church—in which they would not only experience different degrees of spatial distance, but different degrees of configurational dispersion. As these conditions would change with each new venue, their experience of connection to and remoteness from colleagues would vary, as well as balance in communication across groups (O'Leary and Cummings 2007). While distance made it difficult to hear and see everyone, variations in configurational dispersion made it difficult to hear and see the same people each musician heard or saw last time. Participants had access to each concert venue only a few hours before the evening's

performance, so they had limited time to address variations specific to each venue. They had to prepare in a way that would enable them to adapt quickly.

First response: Use the click-track and rehearse disruption

> *It's like rushing straight for a Cesarean section instead of trying natural birth first!*
>
> - *Cathy Thompson, Medici String Quartet*

On the basis of the perceived success of the US phase of the project, which seemed to prove the necessity of the click-track, and in anticipation of performing in four different configurations, the UK quartets started their work with the click-track. The Medici Quartet made the decision in advance of summer rehearsals, and no alternatives were raised by group members. The UK participants focused their effort in rehearsals on mastering the use of the click-track and rarely worked without it. Whether or not they used it for performance was not up for discussion; but how they worked with it was subject to some exploration and revision over time.

When they gathered in the comparatively tight quarters of Paul's barn to rehearse, Tony configured them in nested arcs as a strategy to disrupt lines of sight (see **Figure 6.12** and **Image 6.F**). Tony asked them to prepare for the most extreme configurational dispersion, as if they wouldn't be able to see one another. They were directed to focus on playing within their own quartet, then "fitting your quartet in via the track." When Paul asked Tony whether it was worthwhile to rehearse in a circle given the upcoming diversity of configurations, Tony replied, "I think getting used to playing with the click, and waving and beating, that's all we need to do." Paul countered, "Well, we've got to get the sound right—", arguing for some time working in a circle on interpretation and ensemble. Tony replied, "Got to get the *balance* right in [the concert hall], but it's going to be totally different in every place." Time spent rehearsing *Towards Silence* was largely focused on playing right with the click-track, as Tony suggested, though they did spend time seated in a circle to work, as Paul wished, on tuning and modulation, and to try different approaches to bowing in places to "get the sound right." They did this work alternately with and without the click-track—usually with. They planned to work balance in each performance space, where it would vary dramatically. When the click-track recording proved faulty and in need of

redoing, they worked for a while without it. Anything problematic during that rehearsal was attributed to the absence of the click-track. Tony expressed confidence in this preparation: "I'm not worried about *Towards Silence*. We have the click-track." They used most of their rehearsal time on the first act of the concert series: Vivaldi's *Four Seasons*.

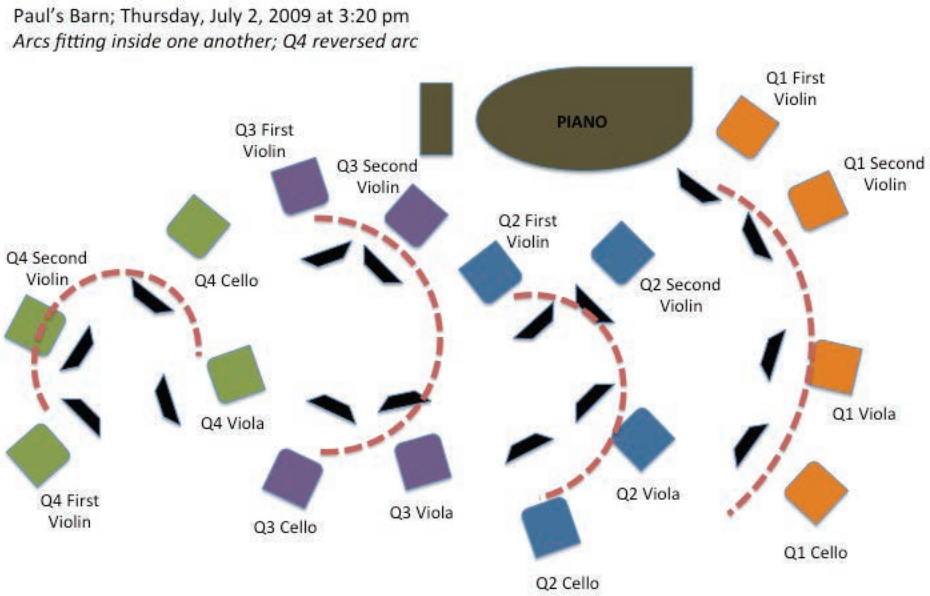


Figure 6.12. Quartets rehearse in "nested" configuration to disrupt visual communication.

Image 6.F. Quartets rehearse in "nested" configuration, Paul's Barn, July 2. Viewed from the right loft; Q4 is in the background, Q3 in the foreground, and Q2's first violin center.

There were costs associated with this direct approach that emerged over time, and participants started to think differently about how they wanted to work with the click-track. The click-track had essentially re-introduced both the metronome and conductor to their process, neither of which had been originally considered appropriate long-term solutions during previous iterations, as they encouraged behaviors antithetical to "making music". As a regulated pulse, the click-track told the musicians *when* to play. While they appreciated a metronome to help them organize tempo early in the process, as they grew more familiar with the music, it became "boring" just to play with the click-track. While Paul considered their task "hopeless" without an external arbiter of the beat, he also suggested to the group, "It would be nice to feel you can actually play it [without the click], wouldn't it?" Ciaran re-iterated the US participants' concern that it was challenging to "be musical within a strict beat."

The click-track also created four conductors within the group. Delivered to the group through the first violinist of each quartet, it established that person as a conductor, responsible for organizing the work of their colleagues in relation to the work of the larger group. As Ivo described, each first fiddle had to give virtually every beat and lead each quartet as a separate entity, but absolutely together with the other quartets. They bobbed their head, scrolled their violin, mouthed counts, and pulsed their body in this effort to communicate this beat. Ciaran, Q3's second violin, described the impact: "I have to sit back and let Anna [as first violin] kind of take control of it." The task constrained the first violinists' abilities to contribute musically as well. It became harder for them to listen to the music being made, given the dominant voice of the click-track in one ear. Q3's violist Ann explained the effect she observed this to take on their first violin:

> [As a result of the click in her ear] she's unaware of a lot of the qualities that are happening around her. Which is a real shame, because she's like, you know, she's the main anchor, really. Everything comes back to the first violin, really, in terms of direction. [Whereas hearing the qualities] helps you contribute more to it. If you hear something special it might make you, you know, aim for that sound as well. There's so many senses involved in something like that…I don't envy Anna for having that [click] in her ear the whole time.

The click-track constrained the participation both the non-conductors could have as well as the conductors within each group. *Starting* their process with the click-track arguably constrained them even more. Cathy, who had likened starting with the click-track to rushing for a Cesarean, missed the quality of listening and focus that she had experienced in the US, which she attributed in part to the "struggle phase" that group had engaged in pre-click.

By mastering the task of playing in time to the click-track, the musicians were able to enter each concert venue and quickly adapt to the dimensions and qualities particular to that space. Participants spent their limited time, in some cases as little as 30 minutes—not long enough to even play through the full 35-minute piece—arranging themselves in the best possible configuration and balancing their sound to the acoustics of the place. They scouted out sightlines to see on whom they might depend each time for visual cues as back up, should they get off time with the click-track (for an example of how one musician adapted her sightlines per venue, see **Figures 6.13** and **6.14**). While the click-track made the musicians less dependent on the need to hear and see their colleagues, being able to

hear and/or see others to some degree still mattered because the click-track was not foolproof. Participants were vulnerable to both technical and human error: i.e., a faulty headset, a dead battery, or getting out of time with the click. Therefore, they relied to some degree on being able to check in with other members in order to sustain coordination. In each new venue, they had to establish new possible sources for these cues.

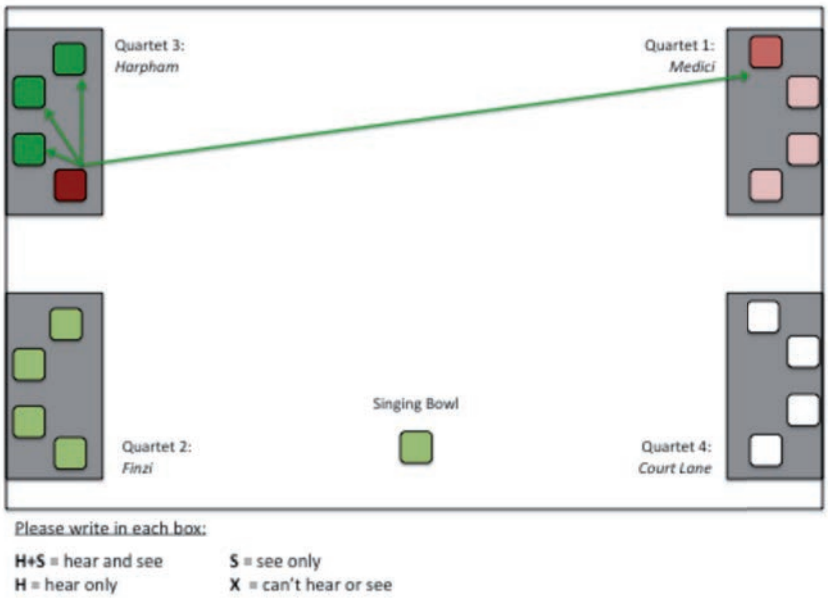


Figure 6.13: Q3 first violin (red) relies primarily on visual cues from Q1's first violin (light red) at the Colet House, across the 70-foot long ballroom. She can hear and see members of her own quartet (green), hear Q2 and the Singing Bowl (light green), and sometimes see other members of Q1 (pink).

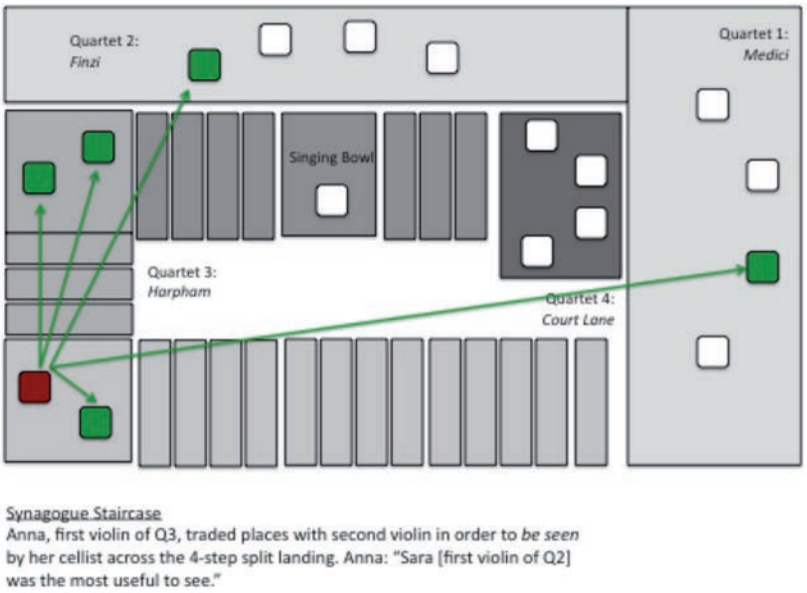


Figure 6.14: Q3 first violin (red) adapts to the Synagogue staircase. She can hear and see her own quartet (green) across two landings of the staircase. But this time she relies on visual and aural cues from Q2's first violin and Q1's violist (green), seated on the first floor.

Beyond this, exploration in the work had to do with finding alternative ways to respond to the click-track as a metronome/conductor scenario, as they grew increasingly confident in their timing, so as to counter the kinds of behaviors those conditions would usually create (see **Figures 6.5** and **6.7**). They worked over time with the click-track much as they did with a metronome in rehearsal, not as a solution to the difficulty of coordinating their work, but as a tool to temporarily attend to in order to master playing in time, with the aim eventually to use it as a tool to sustain coordination while directing their attention to activities involving dialogue and play. By the third performance in the UK, Ivo observed that the musicians were working with the click in "a more relaxed fashion". He said the click had become subliminal, like a heartbeat, making it possible to "withdraw your awareness of it" and achieve the dual attention necessary to prioritize other collaborative efforts. Tony's observation of the UK groups' development over time suggested that they had also found ways to counter the first violinist's dominant, conductor-like leadership and engage increasingly in collective leadership:

> [The first violins are] physically leading beats, and making sure everyone's together in their own quartet. And you can see also there's leads going on within each quartet. So [the quartets] actually are playing within themselves as well. So it's not just a click-track, but they are actually playing together and trying to lead each other, which is good.

Over time, members of the group appeared to be taking "more responsibility and leading more," suggesting that a more equal dialogue was emerging as the group found ways to work creatively in response to the click-track (see **Figure 6.15**). We'll investigate the shifts participants made at this stage of their work further in Chapter 7.

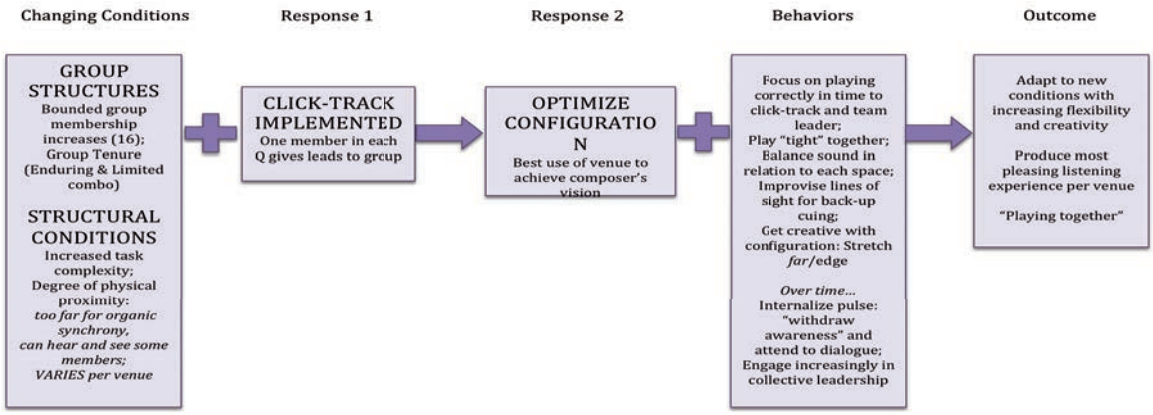


Figure 6.15: Response to varying configurations using the click-track

Second response: Try close proximity configuration, reject in favor of distance; reversal

> *During a dinner break between rehearsals and the Winchester premiere, Ivo, Medici's violist, reflects on the difference between playing in this space and playing in the staircase of the Synagogue the night before.*
>
> *"I think today for the first time, [at Winchester] because of the, just the acoustic of the place, I was more aware of the whole. Last night [at the Synagogue] the sound was too loud, almost…You couldn't tell the detail quite so clearly, because it was just a sort of—*

everything was quite enclosed. In here we have such a large space, and because we're more isolated from each other—it's the isolation you actually need to kind of hear what's going on. You know, if we were all together as a group, we wouldn't hear so much."

I ask, "Why is that?"

Ivo replies, "I had the same [question]—It's paradoxical. But when you're separated, you're actually more aware of spatial—" Ivo gestures with this fingers, indicating sounds coming from behind and around him, passing by, "—kind of, what you're hearing…It could be because everything becomes more equal." He gestures a whole circle in front of him. "But you have an overall impression of the sound," he says, expanding that circle before him into a circle all around. "I can't quite describe it. It seems a paradox, but actually it's true. Which actually, that's what you need. You want to hear everything. That's what the music is."

After preparing for the difficulty of extreme distance, the musicians no longer welcomed the advantage of close proximity. While configuring themselves in a circle initially helped them best see and hear one another in order to begin work together, they became increasingly dependent on a degree of distance over time, in order to produce a better listening experience for both themselves and the audience. Cathy complained that the music didn't sound as clear in Paul's barn as it did in the US. Ivo attributed the difference to the space they were in, which, being comparatively confined, forced them to sit "on top of one another." Now that they were working with greater familiarity with the score and with the click-track, the best way for them to hear one another was to have a degree of separation between quartets. This separation worked differently than the US participants had imagined; they had feared the click-track would isolate each quartet from the others, and that isolation would interrupt their ability to listen and create music. As Ivo explained, the isolation now contributed to the UK quartet's ability to better hear the music as a whole. They were not always able to attribute what they heard to specific musicians or quartets, but hearing mattered.

The difficulty of "too close" was realized at the Synagogue, the second private concert venue, when an effort to try working in close configuration provoked a startling reversal. Tony had met with Event Producer Renee Salamon in advance to plan a configuration for that venue using an idea he had suggested at the Rubin Museum, but that had been rejected by the producer there. The musicians would sit together on the ground floor and let the sound waft up the stairway to the audience seated on the first floor above. Chairs were placed on the ground floor underneath and at the foot of the Synagogue's staircase, and the musicians piled in to this approximately 275 square foot space, chair backs knocking together (see **Figure 6.16**). Within minutes of rehearsing, they revolted. The sound was "too muddled", and they feared the audience upstairs wouldn't hear it. Seeking for a way to achieve some separation between quartets, whether upstairs, downstairs or in some combination, they lit on the idea of playing in and around the staircase itself (see **Figure 6.17**), gaining additional square footage and a 16-foot vertical divide.

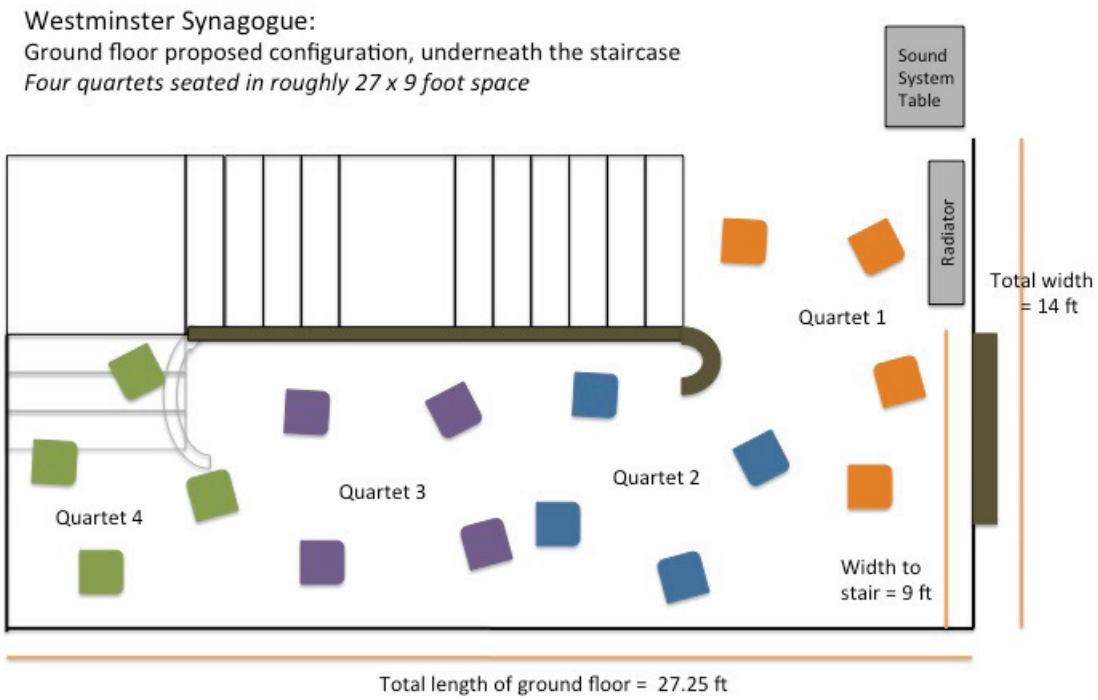


Figure 6.16: Proposed layout on ground floor at the Synagogue; rejected as "too close"

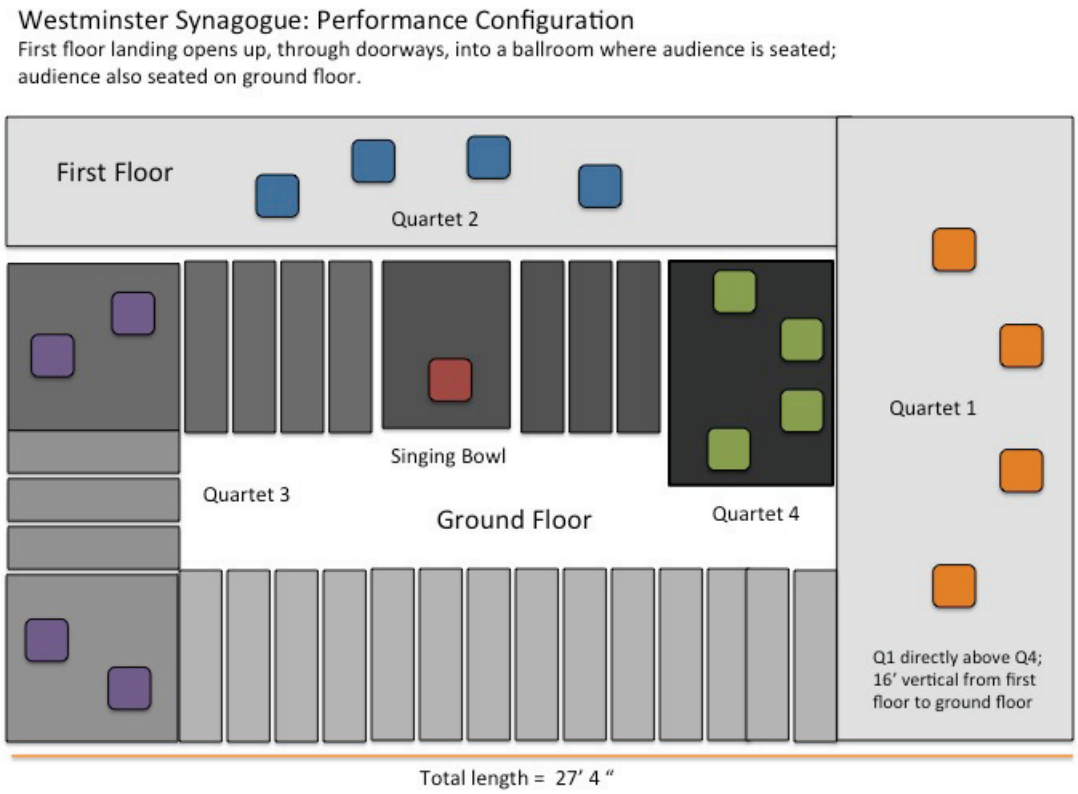


Figure 6.17: Performance configuration at the Synagogue; Quartets separated across ground floor, staircase landing, and first floor.

While the US participants had resisted then wrestled with splitting themselves across the levels of the staircase at the Rubin Museum, the UK participants, armed with the click-track, now perceived the staircase at the Synagogue a useful condition for achieving necessary separation between groups. In this round of exploration, close proximity became a problematic condition of the work insofar as it impaired both the musicians and audience's ability to hear the structure of the music (see **Figure 6.18**). Whereas a degree of separation between quartets, a response quartets made readily given the flexibility afforded them by the click-track, supported an outcome described by Paul as "ravishing" (see **Figure 6.19**)

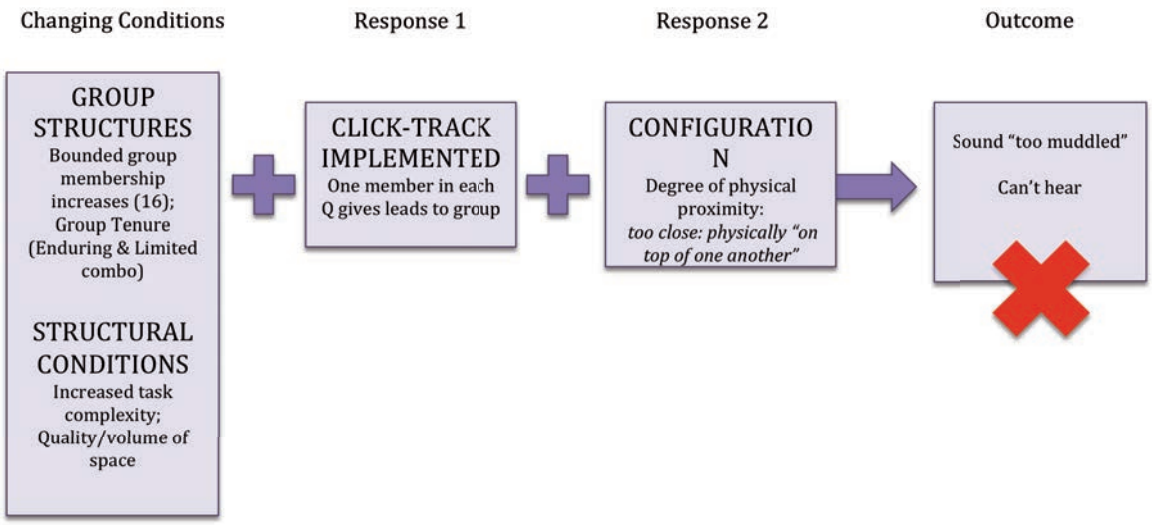


Figure 6.18: Close physical proximity rejected

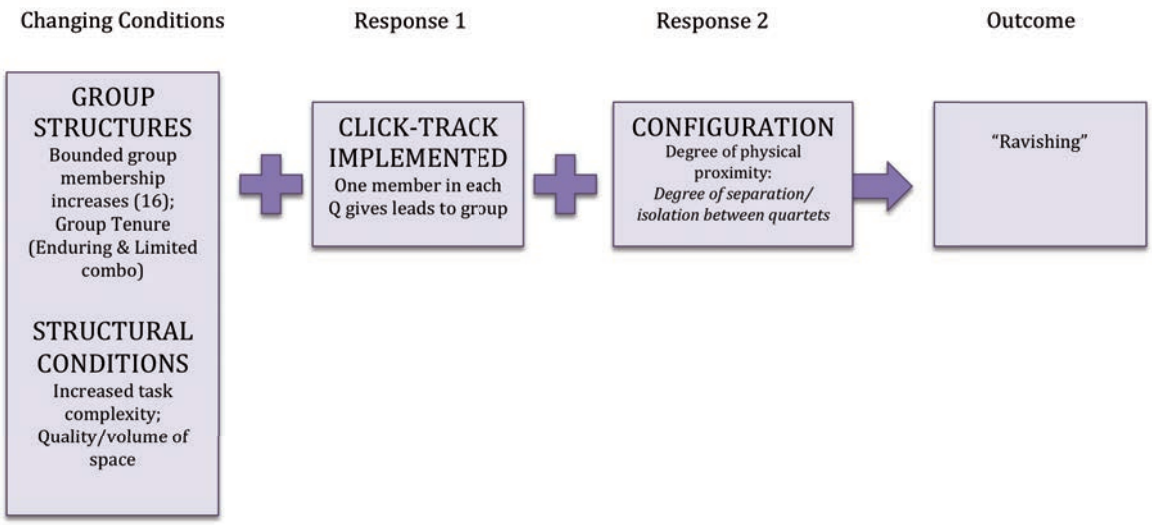


Figure 6.19: Degree of separation/isolation between quartets supported

The problem of close proximity came up again at Winchester, though manifested differently, this time as "perceived" proximity rather than measured physical proximity (though carrying different connotations than the positive ones usually associated with perceiving close proximity in distributed work groups; see Wilson et. al. 2008). While several participants reported being satisfied with the configuration they created at the

Synagogue, some reporting to have had the best experience of intimacy with the audience and integration across quartets, Ivo still considered it too close. He preferred the more spacious quality gained at Winchester Cathedral.[64] The Winchester configuration afforded the quartets more physical distance from one another; they now worked within a 1250 square foot space, with anywhere from 15 to 26 feet separating any two quartets (see **Figure 6.20** and **Image 6.G**). Surprisingly, even at this distance, several musicians reported a perception of being "too close". They resisted this proximity, but on different grounds than their ability to hear the music: sitting too close rendered their identity as quartets and their work with the click-track "pointless."

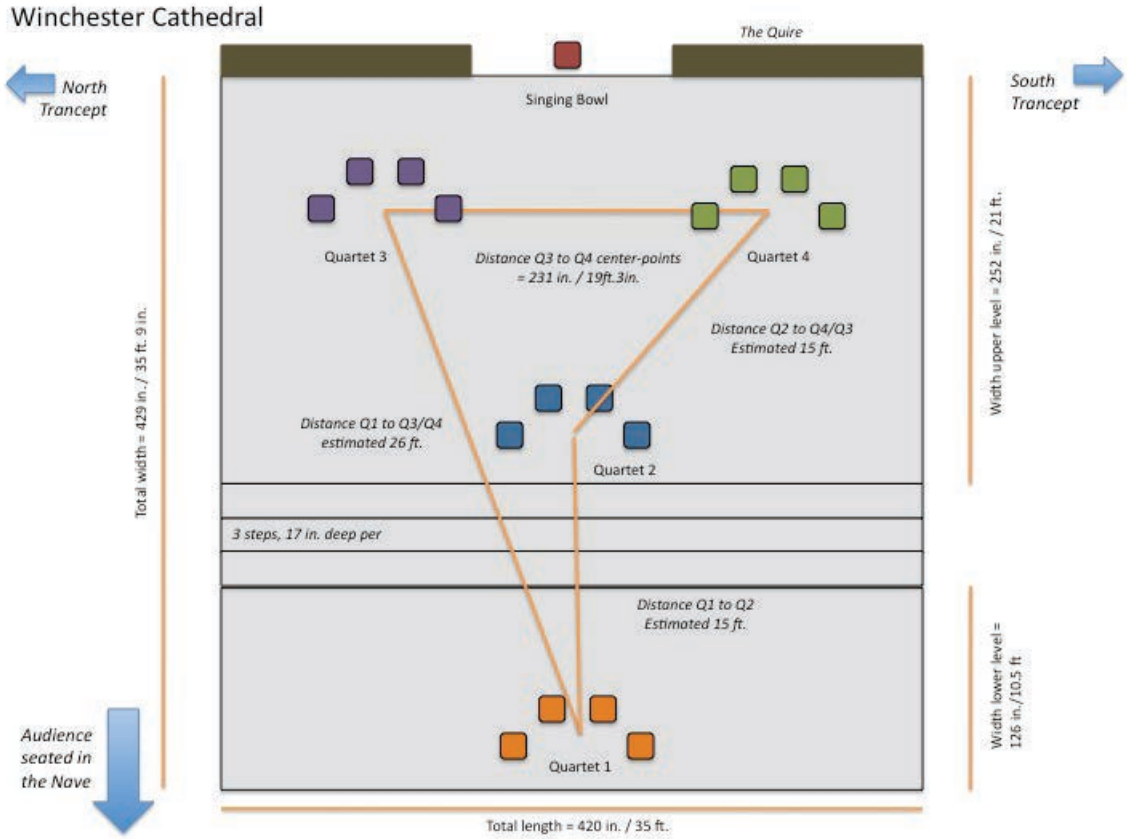


Figure 6.20: Winchester configuration

[64] I conduct a more detailed comparison between these two concert events, at Westminster Synagogue and Winchester Cathedral, in Chapter 8, to generate further learning.

Image 6.G: Winchester rehearsal, viewed from Nave

The perception of proximity was in part based on comparison with expectations for this event. Winchester had originally been conceived of as the ultimate exercise in stretched conditions, where the musicians would have the opportunity to realize Tavener's vision. Participants anticipated being distributed across the dark and distant corners of the Cathedral, using the length of the Nave and width of the trancepts to arrange themselves in cross formation, invisible to the audience and likely out of range of either seeing or hearing one another. Tavener would be attending the rehearsal of this event, and the ailing composer would have his first (and perhaps only) opportunity to hear his music as he intended. They had prepared with the click-track in order to achieve this particular feat.

To the surprise of most participants, however, when they arrived at Winchester Cathedral, film and recording crews were laboring to set up lighting and recording equipment around a defined "on stage" space before the Quire (see **Image 6.G**). In order to facilitate recording, the musicians would need to sit together, "on stage" and well lit, before

the audience. They would be seen by the audience and be able to easily see one another, given no architectural obstructions. Even though separated by a distance of up to 26 feet, they reported feeling as if they were seated "practically in a circle" in this configuration.

This configuration had at least two negative impacts on their experience of the work. First, in this proximity, the click-track suddenly felt "pointless." Participants believed they might have played in this configuration without its aid, had they prepared to do so. Given that they had only prepared with the click-track, however, their work was now dependent on it as a safety net and to help them in sections when the beat was so slow that it was difficult to feel the pulse and stay together. Several members found this frustrating; one described his work at Winchester as "a job", lacking in "passion and love", given that they were denied the opportunity to experience the most extreme configurational stretch, as had been promised, and realize Tavener's vision.

Second, as a result of being seated together on stage and under performance lights before an audience, they reported a feeling of disconnect from one another, though they experienced that disconnect in different ways. Q2's second violin, Natalie, argued that at Winchester participants "could have been sitting in a string orchestra situation playing individual parts." She contrasted this to her experience at the Synagogue, which had "the effect of having four groups, that kind of surround-sound", a quality she thought the composition required. The work invested in developing their voices as four distinct quartets within a larger quartet was disrupted; in this proximity it didn't seem to matter that they were "quartets". Her colleague, Q2 violist Ruth, felt for the first time they were separate groups rather than one whole ensemble. In her perception, this proximity disrupted their ability to collectively create one sound. Both described a disruption in the special quality that differentiates them as quartet musicians, and as a quartet of quartets (see **Figure 6.21**).

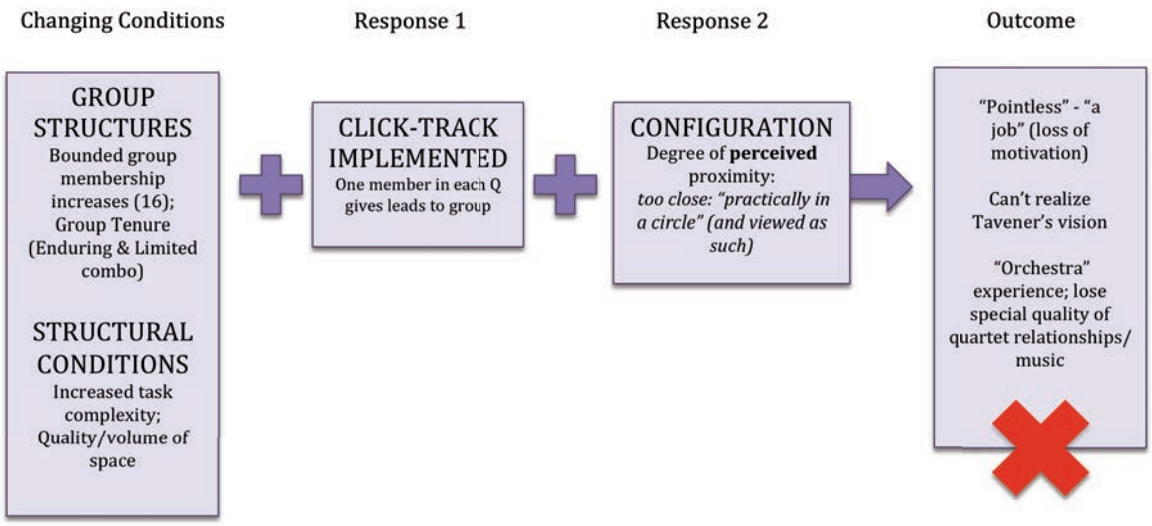


Figure 6.21: Negative impact on outcome when degree of perceived proximity is "too close"

While a faction of participants organized some resistance (see Chapter 3) to overthrow this configuration, this time resistance failed to produce agreed upon change. Trystorming ended here.

By constructing an analysis of the participants' work on *Towards Silence* as a series of trystorming episodes addressing three main stretches in conditions, I have proposed relationships between changing conditions, responses to those conditions, and the kinds of behaviors and outcomes that were either anticipated or that resulted from responses. I've based these on my interpretation of how the musicians ordered and evaluated their work, and their evolving beliefs. Over the course of this exploration, I've shown how and why temporary early responses, such as the metronome and conductor, were rejected then re-appeared in later iterations, with important modifications in behavior as a result of the way in which they were used. Without yet allowing prior study to exert too much influence on this analysis (I'll suggest connections later), I've described how the musicians' "usual" ways of working entered into their beliefs and expectations, as they addressed these stretches, according to those issues that came up in the process. I've also pointed out moments in which participant expectations were surprised by the outcome of trystorms, altering their

beliefs. In the next section, I'll relate these iterative efforts and evolving beliefs to what we know about ensemble and ensembling to suggest new contributions to our understanding.

PRELIMINARY FINDINGS GENERATED FROM ITERATION ANALYSIS

In this section, I relate the narratives and diagrams generated by my analysis of the iterative trystorming episodes informing this collaborative process to what we know about how these informants usually work and think about ensemble. Doing so, I make some preliminary observations about how participants' made ensemble possible in stretched conditions, which I will add to and refine in coming chapters as we examine the story through different lenses and focus on aspects in more detail. I start by suggesting that participants' trystorming efforts and evaluation were influenced by and provide evidence of two group beliefs: a shared purpose to ensemble and a shared purpose to realize the composer's vision. I then discuss other participant beliefs that evolved during this process of exploration, regarding what kind of work would be possible given the implementation of the click-track and the condition of spatial distance, in which several reversals of expectation occurred. I suggest how the observations I made of work in stretched conditions provide evidence that several methods of ensembling proposed by earlier research emerged in this process, with a degree of alteration that elaborates our understanding of these methods. Finally, I point out some new practices that emerged as a result of iterative exploration and learning, including the struggle phase, episodes of close physical proximity, and new ways of working with the click-track to support ensembling that I call "subliminal technology"—emerging practices I plan to discuss in greater detail in subsequent chapters, so that we can better consider their relevance to ensembling.

Shared Purposes

The work of *Towards Silence* participants was influenced by two collectively shared purposes. The first purpose, a shared purpose to ensemble, was suggested as critical to realizing ensemble by theory (Austin and Hjorth 2012) and again based on informant reports and experience of their work in natural conditions: Paul stated that the purpose of a quartet *is* ensemble. The second purpose, a shared aspiration to realize the composer's

vision, is a new finding that had not been suggested by prior research discussed in this thesis. A shared purpose matters to both the wellbeing and performance of creative teams (Hackman 2002, Bennis and Biederman 1997). In a multi-case study across seven organizations, Amabile and Kramer (2011) found that workers are most motivated when they believe they are making progress in work that they find meaningful. This pursuit is best supported by clear goals that define aspirations and by the autonomy to shape and pursue those goals. Progress towards what workers believe to be a meaningful goal best contributes to the cultivation of positive inner work lives, while simultaneously, as Amabile and Kramer argue, enhancing organizational performance.

Shared purpose to ensemble

According to informants, the aspiration to achieve ensemble matters to them in their work in natural conditions, as groups of four. It also influenced participant efforts and evaluation during this iterative process of exploration in stretched conditions. Ensemble as a shared purpose appeared in multiple manifestations throughout the process: as aspiration (e.g., Cathy aspired to the "Really True Connection"), as an explicit requirement of the work (participants repeatedly referred to the quality of balanced conversation between four groups required by the score), and as both a tacit and an explicit measure for the craft-based standard of performance excellence (tools that inhibited their capability to perform as quartet musicians were repeatedly rejected). In the process of exploration, participants evaluated their progress based on indicators of ensemble and ensembling. Ciaran and Ann, as quoted in the opening of this chapter, provide examples of how ensemble can be evaluated based on both the qualities of the process and the qualities of the outcome. "Moving and breathing" together, and experiencing the whole group as one instrument, were offered as examples of the experience of ensembling. The creation of a blended and unified sound with "individual voices within it" described qualities of ensemble in the outcome. Other participants likewise recognized ensembling when they experienced unified action, a higher quality of listening, the "struggle of four voices coming together," play, and "making music" as a balanced and integrated conversation between groups; the musicians could hear these features of the process manifested in the outcome.

As the US quartets debated the decision whether or not to implement the click-track technology, advocates both for and against the click-track invoked the purpose to ensemble in their argument. Lina pleaded with the group to implement the click-track by arguing: "If it's not together, it can't be musical anyhow." Unity and coordination were fundamental to moving forward with developing musicality, in her view. J, on the other hand, considered organic efforts to coordinate a critical quality of quartet music. He feared the click-track would rob the process and aesthetic of "the struggle of four voices [or quartets] coming together," his personal criteria for ensemble, and a view shared by many of his colleagues. This conflict is one example of how the musicians at times disagreed on the best response to difficult conditions, but nonetheless cohered around a shared ambition to ensemble: they were fighting for the same thing. This shared ambition helped them navigate conflicting ideas and recognize, after trying out alternatives, what efforts best helped them to achieve that ambition, even when the route to ensemble surprised expectations. J, for instance, agreed to try the click-track despite his strong objection to its use, and recognized the ways in which it actually helped them to achieve their purpose.

This shared objective also motivated participants to explore and develop new ways of ensembling given constraints. Participants initially considered those responses for organizing their work in stretched conditions that addressed unified action while limiting the range of expression and conversationality "antithetical" to making music. They recognized that they were doing something different when engaging in "struggle", "anarchy" or conversation, then when they let the metronome, conductor or the click-track lead. They realized a risk associated with becoming too dependent on artificial means of organizing their work, sensing the boundaries when work became "boring" or just a "job", and put up resistance. Participants repeatedly modified their behaviors in relation to new conditions, despite difficulty, rather than to abandon ensembling in favor of more efficient solutions. Until their experiences suggested other ways of working with these tools that enabled ensembling behaviors, they rejected them, and instead explored alternative methods to cultivate unified action, struggle and conversationality. When they accepted the click-track as a route to ensemble, they modified their way of working with it to increase the range of expression and play in which they could engage.

Shared purpose to realize the composer's vision

Another shared purpose was in play, informing criteria by which participants evaluated their trystorming efforts: a shared purpose to realize the composer's vision. Some of this vision was known in advance: that they were meant to perform as four quartets, seated at a distance from one another, preferably unseen by the audience (see **Image 6.B**). Other understanding of this vision emerged collectively over time, as participants learned the architecture of the piece, what its special requirements were, and how best to produce a balanced and integrated sound in diverse concert spaces. As Tavener could not have anticipated how his music would sound in different configurations and spaces, it was up to participants to relate his intention, as they best understood it, to these different conditions to realize the best possible listening experience for the audience. As their sense of what was needed to create a balanced dialogue between four voices and a satisfying listening experience for the audience developed, they made new choices in their work, for instance supporting the use of the click-track and encouraging them to increase their range of spatial distribution at the Synagogue.

If participants had only aimed to achieve one or the other of these purposes, they might have made different choices. However, these two purposes tended to support the same decisions. If they had only aimed to ensemble, participants might, for instance, have stuck to the circle configuration in which they could best hear the detail in what their colleagues were doing and converse, without artificial aid. However, they also discovered that while episodes of work in this configuration helped them to ensemble, the circle configuration didn't achieve what Tavener asked for in the score, *and also* hindered ensembling, in that they experienced a problem of "too close," disrupting their sense of individual group identity and their ability to hear and create a more balanced sound overall. These shared purposes also worked in the same direction in the case of the conductor and the use of gestural relay. A conductor, or dominant leader, was considered both antithetical to ensembling and antithetical to the architecture of the score, which requires leadership from everyone at different moments. While embodied cues and gestural relay served to forge a quality of ensemble through the musicians' struggle to find their way to a collective pulse and converse across distance, the US quartets were not only unable to make it work to the point where they could hear one another, but they also distorted Tavener's intended aesthetics. The discovery that these two purposes tended to support the same decisions

strengthened evaluative arguments. I add the second to our evolving framework of group beliefs that support ensembling (see **Table 6.A**).

Group Beliefs derived from Theory (Chapter 2) and supported by new data (Chapter 5)	**Group Beliefs suggested by stretch-generated data (bold; Chapter 6)**
Share purpose to ensemble	Share purpose to ensemble (supported by data)
Secure workspace	Secure workspace
	Share purpose to realize composer's vision (new)

Table 6.A: Group beliefs that support ensembling

Evolving beliefs

While experts at ensembling in natural conditions, participants didn't begin this process knowing the best ways to ensemble and realize the composer's vision in stretched conditions. Their understanding of the task and their beliefs regarding best responses to constraints to realize objectives evolved during the process. As beliefs evolved, some reversals of expectations that were based on prior experience in natural conditions occurred, particularly regarding the click-track and degree of spatial distance.

The click-track: from antithetical to critical

The changing perception of the click-track, and the kind of behaviors and outcomes it would enable, was perhaps the most significant change in participant beliefs during this process. At first believed to be antithetical to ensembling, the click-track came to be considered by many participants as critical to ensembling, given stretched conditions. This reversal was

based on a number of discoveries and shifts in beliefs that added up to a complete reversal of expectations and the emergence of new behaviors.

At the start of this project, the click-track was believed by many to be an enemy of art. Several members of the US quartets argued passionately against the use of the click-track and delayed its implementation until they had exhausted alternatives, on the grounds that playing to a click is like playing to a metronome, a foundational preparatory practice, and something they would never do before an audience. Paul differentiated between the activities of "listening" and "playing to something that's clicking," calling the latter "a negation of everything I believe in." J, as a particularly vocal opponent to the click-track in the US, argued that the click-track, being a fixed, pre-recorded track, could not accommodate and adjust for the natural reverberation of sound through this space, as the musicians could. If not born of listening to the space and one another, he urged, it wouldn't be "music" they perform. Participants expected the click-track to isolate them from one another, to take away their freedom of expression, and to turn them into routine, efficient players.

Despite early, sometime passionate arguments against the click-track, once the musicians implemented it, revisions of opinion occurred, suggesting the click-track might be the best route to making music, given constraints. The musicians discovered that once they were able to play in perfect time together, and without the loud distortions caused by previous efforts to be heard, their ability to hear one another improved. Rather than increasing feelings of isolation, the click-track enabled them to better hear one another across distance, and to listen: listening being critical to making music together. Fenella observed that the "tightness" afforded by the use of the click-track increased rather than constrained the musicians' freedom: "Now that we can hear, we *play*." Their ability to converse spontaneously across distance improved. Ivo expressed his belief that, as antithetical as it had previously seemed, using the click-track actually made it possible for the quartets to do the work necessary to ensemble, claiming ensemble would have otherwise been impossible in stretched conditions. "If you don't have the click," he explained, "you're relying totally on what you hear. And in a big space what you hear is delayed." In his assessment, ensembling would have been impossible without the support of the click-track because the musicians would never have been able to realize the fundamental enactment of synchronous coordination without it, nor would they be able to

hear one another in order to listen and engage in dialogue.

As a part of this shift in belief, other changes happened. Participants in the US began work with the assumption that collectively feeling and embodying the pulse would be the best route to ensembling, and exaggerated the pulse physically to achieve synchrony across a larger group size and physical distance. However, they found that at a certain degree, physical exaggeration became antithetical to the musical aesthetics of the piece. It looked silly; Cathy was teased by her colleagues. Q3 cellist Andrew called the hyperactive gesturing "pornography." It disrupted the aesthetics of the music. And these efforts did not solve the problem of synchronous coordination. While their belief was based on usual methods of ensembling, such as feeling the pulse and developing a complex system of visual cues to support spontaneous communication, they learned that this route to ensembling was less effective in stretched conditions, and could not alone solve the problem of coordination.

Participants also came to think differently about how they might work with a metronome or click-track. At the start of the process, they assumed that a click-track would lead to behaviors antithetical to ensembling, such as allowing a dominant logic (the click-track) and leader (the first violin) to lead their actions, rather than equally engaging in the work. Bound to play in perfect time with an external arbiter (rather than with one another), they would have fewer opportunities to develop musicality. They would lose those features of their work that are fundamental to their identity as string quartet musicians as well as to the aesthetic of the composition, which requires leadership from many. While they did initially focus their work with the click-track on performing together in perfect time, they discovered that they could work with the click-track in the way that they might rehearse with a metronome, or their own tacitly established pulse, as a preparatory practice. Once they had mastered playing in perfect time to *with* the pulse and thereby one another, they experienced a freedom to "release their ears" and attend to listening (now that they could hear) and conversing with one another within their groups, and to some degree with other groups at a distance. They could do this in stretched conditions, because they could depend on the click-track to keep them in time with one another even when they couldn't hear. Through their efforts, participants learned that responses like working the click-track, metronome, and conductor do not necessarily lead inevitably to routine or efficient behaviors and methods, but realized that they can work with these tools in ways that help them to both ensemble and better realize the composer's vision.

While most participants expressed agreement with this emergent belief, some expressed difference of opinion. J and his Jasper Quartet colleagues in the US acknowledged that the click-track "worked" to solve the problem of synchronous coordination, but continued to prefer working without it, believing that, had the group continued to refine organic methods of communicating the pulse, they could sustain synchrony without artificial aid and achieve a higher degree of conversationality. The Jasper Quartet conceded to using the click-track on the basis that *Towards Silence* being "Medici's project", they had the final say. After his experience in the US, Tony believed that all the UK quartets needed to do in rehearsal was to play right with the click, as the click-track solved the difficulty of coordination for them. Then they could emphasize their efforts on finding the best configuration for each performance space and adjusting balance to suit each space. Others such as Paul wanted to do more than just play right with the click-track, and considered it important to also "get the sound right" as an ensemble, so he continued to create conditions for the group to rehearse in a circle configuration and focus on tuning, bowing and musical interpretation.

Distance: from the problem of too far to the problem of too close

Another significant shift in participant belief regarded participants' changing attitude towards distance as it impacted their ability to achieve ensemble and the composer's vision. Initially, they feared that spatial distance would result in feelings of isolation, interrupting their ability to achieve a level of communication and dialogue with one another to which they aspired. Their experience often supported this belief; certainly in the US, Q4 experienced a high degree of isolation positioned on the bottom floor of the configuration, unable to hear cues or conversation above them, finally crying out "We're in jail down here!" As a result of this belief, both groups began work in close physical proximity and the US group in particular frequently returned to work in this configuration in order to develop ensemble.

However, as they developed their understanding of the score's architecture, and with the aid of the click-track were better able to play in time and to hear one another, they learned that a degree of distance was needed in order to "hear everything" in a more balanced way and get an overall impression of the music to which to respond. Musicians

learned that distance was also needed in order to enable a dialogue to happen between four distinct, and necessarily separate, voices: each quartet. Some participants experienced a problem of perceived closeness, even when seated at a comparatively "far" distance from one another; configured together "on stage" at Winchester, they felt themselves to be as if one group, as if an orchestra, and lost sense of their individual identities as four quartets. While configuring themselves in a close circle formation had benefits for rehearsal, they ultimately came to believe that a degree of distance better supported their objectives.

Methods and behaviors for realizing objectives

Given that participants shared the purpose to ensemble and realize the composer's vision, as their beliefs evolved regarding the best ways to achieve those objectives, certain methods and behaviors emerged. When we compare these practices to what we know about ensembling in natural conditions, we see that some of the methods and behaviors demonstrated are the same or similar to work in natural conditions, some look similar but change somewhat, and some methods are new to ensembling. I review several of these methods here, focusing on those which altered in this process, with the intention of developing more detailed investigation of the new methods that emerged in Chapters 7 and 8, in order to better understand how they were performed and what their relevance might be to our evolving framework of ensembling. We may discover that the altered and new practices that emerged are candidates for methods of ensembling in a range of conditions.

Similar methods, with some alteration

<u>Preparation: Playing in time takes more effort in stretched conditions</u>

The strategies for achieving foundational mastery at the level of playing the score at the correct tempo (according to external measures) and achieving synchrony as a group, were similar to usual methods of preparation, with some difference: the use of a conductor is not common to the work of string quartets and participants spent more effort on the fundamental task of playing in time. They were also limited in their ability to achieve synchrony via a collectively felt pulse, despite efforts at embodying one. While it is common for quartets to use a metronome as a temporary tool for establishing the correct tempo for a

composition, the use of a conductor to help them achieve synchrony, even as a temporary tool for rehearsal, is not usual. The use of a conductor and the increased amount of effort spent addressing the organizational task of achieving synchrony may have been reasonable in proportion to the increased group size, limited group tenure and increased task complexity: there were more people to organize, who had no prior experience as a larger group achieving synchrony. They had not yet had time to collaboratively develop their way of "living together simultaneously in specific dimensions of time" (Schutz 1964: 162). Nevertheless, the extra effort spent on foundational work delayed interpretive explorations.

This delay was more evident in the UK than in the US. In the US, the conductor and metronome were never used. The primary reason for this seems to be that the US quartets had invested a higher degree of effort in advance preparation. They were better prepared as groups, and had spent more time learning their own parts as quartets before beginning to work with the larger group. They spent less effort playing together in time while seated in a circle than their UK counterparts, and more quickly progressed to working musical interpretation. The UK participants, on the other hand, were (according to one participant) "sight-reading" when they first gathered together in February; many (not all) had not rehearsed or had rehearsed minimally in advance. Much of their preparatory work—such as working with a metronome to learn the requirements of the score—had to happen in rehearsals together, delaying other kinds of work.

This preliminary finding suggests that the foundational tasks of getting the music played at the correct tempo and achieving synchrony between members may in stretched conditions become more easily differentiated from musical/interpretive tasks, given the extra effort required to address this difficulty, whereas in natural conditions informants tended to think of these activities as intertwined. At the same time, we learned by studying the work of quartets in natural conditions that new work, such as the new composition *Towards Silence,* also increases the amount of effort required to address the foundational work of learning the requirements of the score—a score that has never yet been understood, interpreted and performed. Participants lacked familiarity with the score as well as with one another. While I will pursue a fuller comparison of the US and UK experiences in Chapter 8, a quick comparison here suggests that more extensive preparation, even at the level of sub-groups within the larger group, will decrease the amount of time needed to address fundamental tasks in the larger group, and render

several preparatory steps unnecessary to the full group process. Groups who are better prepared, even when working with a new score, can perform work in stretched conditions more like work in natural conditions, engaging in technical and musical work simultaneously.

Internalizing the pulse

The musicians initially rejected new and artificial routes to achieving synchrony in favor of their preferred approach, suggested by our elaborated framework of ensembling (Chapter 5): coordination via the *pulse*. Both the UK and US quartets sat in a close circle to start work together, maximizing their ability to hear and see one another as they learned to identify what the particular challenges of the composition would be. From the vantage of close proximity, the quartets started with the work of finding the pulse of the music together. While in process this activity was never made explicit, musicians reported in interviews later that their primary objective for early rehearsals was to feel their way towards a collective consensus of the pulse, and they measured early success on this basis. In natural conditions, it appears this activity is dependent on being able to share close physical proximity, but we learn from this exploration that participants believed it could be possible to find and internalize the pulse based on close physical proximity for at least part of the process, then sustain that pulse across distance through other strategies. Once distributed across four balconies of a spiral staircase, the US quartets dedicated hours to developing an acrobatic relay of cues to communicate across horizontal and vertical distance, exaggerating their embodiment of the pulse, trying out various tactics for doing so, making the tacit process explicit in order to cross the divide between balconies.

When gestural relay failed to provide sufficient precision in timing and caused distortion in the music, participants agreed to try the click-track and a new alteration to the method of internalizing the pulse emerged. Their work temporarily became focused again on playing in perfect time with an externalized and artificial pulse, until they were able to master that task. Unpleasant at first, once convinced that the click-track could potentially help them serve their purpose to ensemble, they began, over time, to work with that pulse as they would work with an emergent pulse, allowing it to become subliminal to their work together, making space for other behaviors and interactions. This transition led to new discoveries of what might be possible in distributed work, and the emergence of what I categorize as an entirely new method of ensembling: subliminal technology.

Isolating groups

A seemingly new practice that emerged in this process is actually one similar to work in natural conditions, a finding which prior study of informants had not yet generated. Participants frequently isolated two or three quartets at a time, to rehearse sections of the score in stages. Doing so, they were better able to address specific difficulties of coordination and to give others the opportunity to better hear what each quartet was doing, so that they might listen out for specific cues or qualities in the music when the full group performed. I also observed several instances in which Cathy and Fenella separated from the group to rehearse together. When I asked about this, Fenella said that it was quite common for musicians within a quartet to work in pairs apart from the full group. She explained that "breaking things down into small combinations is always part of the rehearsal process. So it's very normal to go off and…rehearse together, say, particular things in unison, or in octave, or whatever. Intonation—So it's completely normal…" Translated to work in stretched conditions, this finding suggests that the work of the larger group may benefit from additional rehearsal (beyond preparatory) of sub-sets of group members, whether apart from or in the presence of the larger group.

Leading collectively

From the beginning of *Towards Silence* pre-rehearsals, the musicians' aspired to collective leadership in their work, as they would in natural conditions, though they had yet to discover if and how this would be possible in distributed conditions. Paul recognized immediately that the score "demands the initiative from [many]," framing collective leadership as a structural requirement of this particular task. Early in their work, the musicians rejected more efficient routes to coordination that put a singular voice or logic, such as a conductor or metronome, in a dominant position *for too long*, as that threatened their usual methods for collaborating. Even as they worked with a conductor, they marked in their scores when different members should take the lead, mapping a collective structure.

As the musicians anticipated, the introduction of the click-track interrupted collective leadership practices by installing a dominant leader in each group. Given that the click-track was distributed to one member of each quartet, typically the first violin, one member of each group was suddenly charged with the artificial task of enacting leadership as conducting, embodying the pulse in order to communicate cues to colleagues. This

caused an imbalance in leadership influence, favoring the first violin, compromising that musician's ability to otherwise allocate their attention on more artful aspects of making music, and creating a dependency in the group on a dominant leader. However, we learn that over time it appears that participants are taking "more responsibility and leading more," suggesting that more equal leadership was emerging as the group spent more time with the click. I will look in more detail at *how* collective leadership practices emerged in Chapter 7, to learn how its practice in stretched conditions differs from its practice in natural conditions. So far we just know it matters to participants and that there are indications that it emerged in practice.

New, emerging methods

I identified four new methods that emerged in this process of exploration. I describe them briefly here, with the intention to investigate three of them in greater detail in coming chapters, and consider their relevance to our developing understanding of ensembling.

<u>The struggle phase</u>

The US and UK groups both, to differing degrees, experimented with ways to develop and sustain a collectively felt pulse to synchronize their work across distance, before resorting to artificial aid. The US quartets dubbed this part of their work process "the struggle phase." Exaggerated embodied cues and gestural relay were heavily exercised by the US groups in particular, but these movements largely disappeared over time as them click-track rendered it less necessary. However remnants of the pulsing and cuing remained, seemingly more out of preference than necessity. J continued to share eye contact and gestural communication with Cathy, something she appreciated as enhancing the quality of connection and conversation between them.

As a practice, collaboratively accomplishing a shared sense of the pulse via the embodied gestures and cues is very like the practice of achieving synchrony via a felt pulse in natural conditions, perhaps just a larger, more externalized manifestation of that activity, but with additional implications when performed in stretched conditions. As discussed in Chapter 5, accomplishing the pulse in this way allows groups to develop their own sense of rhythm and being together, finding their right place in time through relationship to one

another rather than to an external arbiter. As such, it increases relationality between members, better laying the foundation for ensemble to emerge. The US quartets essentially developed a "complex system of leads" through gestures and embodied pulses by which they aspired to achieve fundamental capabilities to act as a synchronized unit, an equivalent to the early-career work the Guarneri Quartet practiced to develop and sustain ensemble (Blum 1986: 10). Given the difficulty of accomplishing synchrony in stretched conditions (more members, more distance), efforts exerted during the struggle phase can also be considered an example of forging ensemble by working on or beyond the edge of known capabilities. Indeed, they did go beyond the edge of what was possible; efforts during the struggle phase fell short and participants couldn't achieve synchrony. Meanwhile, by requiring every member to engage equally in synchronous coordination efforts and to give leads, it increased dialogical relationality between quartets, upped the intensity of their work process overall, and resulted in a higher quality of listening across quartets that musicians believed enhanced their work in later stages of the process. Some informants believed that, had they had more time to work together as a group, this method could have succeeded as an alternative to the click-track—one they preferred.

In this case, the "struggle phase" manifested as a variation on achieving interactional synchrony via a collaboratively accomplished pulse and elaborate system of leads. The heightened degree of difficulty introduced by conditions on this task had other effects on the process. Given the implications of struggle for other methods of ensembling, and the fact that we have yet to learn more about how other kinds of "struggle" phases and activities therein might enhance processes of ensembling, I suggest it as a *new* method or feature of the process to further investigate, later in this thesis (Chapter 8) and in future study.

Episodes of close physical proximity

Both US and UK participants believed that episodes of close physical proximity increased their ability to perform methods of ensembling—developing interactional synchrony, dual attention, dialogic relationality, and a higher quality of listening—that informed the way in which they worked with the click-track. Fenella reported that the US group used their time in close proximity to engage in more equal collaboration without the communication problem that distance introduced. This had implications for group processes of discussion and evaluation and for the music. Given the difficulty of communicating across the four balconies of the staircase, episodes of close physical proximity afforded US participants

opportunity to contribute engage equally in decision-making processes and allow for the emergence of consent. When playing music together during episodes of close proximity, they generally referred to their work as "tuning"—making subtle adjustments in relation to the sounds created by one another in order to develop a unified sound as a group. Paul argued for time in a circle in the UK on the basis that "at least we can behave as if we are one ensemble" for that duration of time. While work in close proximity at the beginning of the process, particularly in the UK, focused on getting the fundamentals right, the work processes benefitted in later stages from work in close proximity to "tune" the ensemble and increase the likelihood of ensembling behaviors.

Subliminal technology

Despite it's early characterization as "antithetical" to ensemble, the click-track, surprisingly, came to be considered a critical enabling condition. Ivo claimed that ensemble would have otherwise been impossible in stretched conditions: "If you don't have the click," he explained, "you're relying totally on what you hear. And in a big space what you hear is delayed." The click-track enabled the musicians to achieve synchrony, given stretched conditions. While preparing to play in multiple venues, Paul declared that efforts would have been "hopeless" without an external arbiter of the beat, simply in terms of establishing and sustaining coordination in varying configurations. It also surprisingly enabled them to hear one another better, so that group members could cultivate dialogue and work on achieving a better balance between voices. As Fenella observed, in the US the "tightness" afforded by the use of the click-track increased the musicians' freedom: "Now that we can hear," she said, "we *play*." The click sustained the pulse, when distance made it impossible to achieve organically, so that the quartets could enact the methods of ensembling that make collaboration-as-conversation, ensemble and play possible.

The click-track alone didn't make ensemble possible. *How* the musicians worked with the click-track mattered. Participants first used it as they might normally use a metronome, as a fixed and imposed order that temporarily helped them play in perfect time together. Once they had mastered playing in perfect time *with* the pulse and thereby one another, that task grew boring. Rather than persist in behaviors that would, in the long run, be antithetical to musicality and ensembling, they began exploring the ways in which they could play *in relation to* time (the click-track) and one another. Their ability to shift from playing in time to playing in relation to time depended on an important transition: that the

musicians transformed the artificial pulse into a subliminal "heartbeat" organizing and informing, but underlying their work together. By the third UK performance, Ivo reported that the musicians were working with the click in "a more relaxed fashion." As the click-track grew familiar enough over time to become subliminal, "like a heartbeat," Ivo explained that they could "withdraw [their] awareness of it" and achieve the dual attention necessary to ensembling, contributing ideas while listening to and conversing dynamically with the contribution of others. This transition from click-track as external arbiter to internalized pulse constitutes a use of technology that diverges from usual ways of engaging with technology as an enabler of coordination. How exactly participants made this transition needs further investigation: I elaborate on this process in Chapter 7.

Rehearse disruption

As a fourth emergent practice in stretched conditions, the UK quartets rehearsed disruption of visual and aural proximity or communication in order to prepare for the variable configurations which they would meet in each concert venue (see **Figure 6.12**). While this was a specific strategy to prepare for work in multiple configurations, it might also be an example of intentionally interjecting variation or disruption into the work process—a form of disruption particularly relevant to work in stretched conditions—in order to raise the level of attention and encourage participants to engage in multiple modes of communication outside those they usually rely on in natural conditions. However, participants did not report particular benefits from this exercise. While the UK group had planned to try more such iterations, for instance by using the lofts in the rehearsal barn to explore vertical as well as horizontal distribution, they ran out of time, choosing instead to focus on work in close physical proximity to tune ensemble.

Some of these methods may be entirely new to ensembling, others may be different examples of known ensembling methods, revised to suit particular task requirements. The struggle phase, for instance, could be considered an example of collaboratively accomplishing synchrony via a more explicit process of finding a shared pulse, forging ensemble by developing complex systems of communication, or upping the intensity of the work by taking on challenging constraints. Subliminal technology engagement is an extension of the ways in which informants usually work with the metronome over time or

with their own intrinsically established pulse. These new methods may also be more relevant to work in stretched conditions of some kind, which require phases of distance and technology mediation, and will likely vary given the degree of distance and type of technology. We have yet to discover whether they are also relevant to work in natural conditions. We do learn, given how participants persist in pursuing certain methods of ensembling despite constraint and increased difficulty, that several of the methods of ensembling continue to be relevant to their work in stretched conditions.

Conditions

Given that this analysis was structured on the introduction of changing conditions, we also learned something about how the methods of ensembling interact with variation in conditions. I've described some of the ways in which participants responded to changes in conditions by adapting their practices or developing new practices. In this section, I simply summarize what new data tells us about the variation in conditions that can be part of the work while still allowing for the possibility that ensembling can be performed (see **Table 6.B**), insofar as we can yet understand. I will continue to investigate the relationship between conditions and the emergence of ensembling behaviors in coming chapters.

Conditions derived from theory (Chapter 2) and elaborated by data (Chapter 5)	**Variation in conditions proposed by stretch-generated data (bold; Chapter 6)**
Task well matched to/challenges capabilities	Task well matched to/challenges capabilities
Close physical proximity	**Degree of physical proximity (can hear and see some members) as well as degree of distance (can hear and differentiate voices); potential for episodes of close physical proximity**
Potential to synchronize	Potential to synchronize, **organically and/or via**

	coordinating technology
Enduring group tenure	**Can sustain a mix of limited and enduring tenure**
Bounded, small group (4)	Bounded, small group **(16)**
High degree of task interdependence	High degree of task interdependence ("as if one")
Shared cultural norms/beliefs	Shared cultural norms/beliefs
Clear, compelling goal	Clear, compelling goal
Context support (i.e., sufficient resources, info)	Context support (i.e., sufficient resources, info)
Autonomy (self-led)	Autonomy (self-led)
Craft tool tenure	Craft tool tenure
	Can sustain variation in configuration/proximity (but quality/volume of space influences perceptions of proximity and relational qualities)

Table 6.B: Variation in conditions that support ensembling proposed by new data

The introduction of increased group membership, limited group tenure, increased distance between members and increased task complexity required participants to spend more time on the task of achieving synchronous coordination than necessary in natural conditions, and prompted quartets to temporarily depend on dominant leadership from a conductor or their first violinist to play in time. However, over time and given shared objectives, ensembling methods emerged, with some modification. Given that participants reported experiences of ensembling, membership size of 16 did not break ensembling, so the question remains as to whether there is a point soon on the horizon of expanding membership at which ensembling becomes too difficult to pursue. The click-track as a

coordinating technology came to be considered a critical functional condition of the work; it enabled participants to achieve synchrony when it was otherwise impossible. Even so, as a newly introduced craft tool, it took time for them to adapt their process to the new qualities it introduced. The fact that the quartets frequently reconvened in a circle to do the work of "tuning" the music, within optimum range of hearing and seeing, suggests that they also considered the possibility to share proximity, even temporarily, critical to the work. When working in spatially distributed conditions, a degree of proximity seemed to be needed in order to supplement the click-track with visual and aural cues to sustain coordination as well as to support potential for hearing, listening, conversing and playing. At the same time, a degree of separation was also needed, so that the musicians could hear the full scope of the sound, and differentiate their voices as quartets in dialogue with one another. Participants were able to manage variability in configuration and proximity, though the qualities of each space influenced perceptions of proximity and the ways in which members experienced group dynamics: whether they felt as if they were an orchestra or could develop their distinct group voices within the whole.

Ensemble

> *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose. (Chapter 5)*

While significant qualities of ensemble such as collective leadership were just beginning to emerge in the time the quartets had to work on *Towards Silence*, evidence indicates that ensemble was emerging. Reflecting the morning after the US premiere, Fenella told me that in her opinion the group became more "playful" once they got the click; play being suggested by theory as the realization of ensemble (Austin and Hjorth 2012). She declared that "the whole thing came together" in performance, and that she was persuaded for the first time that the composition works in different levels and can work in different configurations. Melia, Q4's cellist, reported that despite the challenging configuration of the staircase, she "could feel a genuine connection between all of the groups." They played "tight" together, experiencing both synchrony and unity, and achieved via the struggle

phase a higher quality of listening and attunement in their interactions. In the UK, Tony reported the quartets were "actually playing together and trying to lead each other." Furthermore, musicians repeatedly made decisions that favored methods of ensembling over more efficient strategies for achieving coordination, demonstrating their shared purpose to ensemble. With the exception of the breakdown in shared purpose at Winchester Cathedral (an event I explore further in Chapter 8), ensemble remained an active objective in this work; the fact that the Winchester experience was such a disappointment to participants underscores their investment in the shared purpose to ensemble (and to realize the composer's vision).

CONCLUSION

At the start of this chapter, I presented Paul's characterization of quartet work as exploratory, divergent, discursive, lumpy processes, which cultivate a higher level of attention and shared commitment. While I've constructed "order" in their work process with this analysis, I did so to demonstrate how participants proceeded, often pragmatically, to address difficulties and explore possible responses, creating *an* order of iteratively trying out options. At the same time, they cultivated dialogue and at times even disorder: struggle, anarchy. Paul's characterization suggests why musicians would choose to cultivate an exploratory process, hearing out different ideas and iteratively trying out their efficacy, as a way to address difficulties by generating divergence and opening the process to unforeseen possibilities. By trying out different approaches to addressing task requirements and changing constraints, participants' expectations were often upset by new discoveries, and their methods for and beliefs regarding how they could best respond to stretches in constraints underwent revision.

In this analysis, I've used narrative episodes and diagramming to plot this story of iterative exploration, so that we might learn, along with participants, from these efforts and their outcomes. The diagrams are designed to help us locate moments in the process in which expectations were upset, and reversals occurred, opening the work process to new discoveries, and to understand how perceived relationships between conditions, responses, behaviors and outcomes evolved over the life of the project. While the diagrams may appear causal, and in fact *are meant* to express the participants' perception of causality, I do not

mean to suggest they believe that sitting in a circle inevitably predicts the behaviors that follow (I draw a "+" rather than an "→" in the diagram to dissuade the reader from this interpretation). However, in the context of string quartet culture, a majority of participants shared the belief that those were the "right" behaviors to engage in whilst seated in a circle. As Faulkner demonstrates in his study of studio musicians, work groups with a shared culture develop shared perspectives on how best to address the set of organizational problems they routinely face; their shared understanding of how to respond to those problems is evident in their behaviors and attitudes (Faulkner 1971: 8-9). For participants, the elected response more directly predicted what they could and would do *as string quartet musicians*. It afforded them opportunities to work in certain ways, ways they naturally prefer to work.

This analysis emphasizes the pragmatic approach the musicians took in regards to their work, which may surprise the reader as it did at times during fieldwork surprise me, despite my awareness that much of the creative process involves addressing a series of practical difficulties and achieving a level of familiarity with the architectural form of the task and mastery of technical requirements and work conditions in order to aspire to moments of play. How participants addressed work pragmatically mattered in terms of whether it increased or decreased their capabilities for play later on—there were better ways than others, for instance, to work with a conductor. The work wasn't all pragmatic. "Passion" did spring up, particularly in moments when musicians perceived a threat to their identity as *quartet* musicians, their ability to achieve the composer's vision, and their aspiration to experience ensemble with their new colleagues.

This analysis presents a narrative of discovery, emphasizing the emergence of new practices as beliefs shift in response to learning from a series of iterative responses to constraints. In the next chapter, I look at how participants actively generated new potentialities for ensembling given constraints by engaging in the methods of ensembling, specifically reconceiving and openness to uncertainty, in order to make ensemble possible. I will explore moments of passion and propose some alternative ways of understanding how this process unfolded, with different rhythms and directional movements. This chapter has been a story of action, debate and decision. Next I'll explore movements towards inaction, or resistance to closure in favor of maintaining the possibilities inherent in uncertainty. I'll take another look at moments of reversal in our story, and reframe them as moments of

reconceiving, in which uncertainties gave way unexpectedly to new ways of understanding constraints and imagining future action. By exploring the more disruptive, disorderly features of the process, I intend to build a more elaborate understanding of ensembling, and the multiple parallel dimensions along which it might develop. Order and disorder can coexist. Participants run into problems, in fact, when one dominates at the cost of the other.

Chapter 7. *DESTROYING THE MUSIC*:

Making new conversations and capabilities possible

It may just be that it can work in a way that we haven't yet sussed out…I know from my life in the quartet that things that were simply impossible when first learning a piece become easy when you know it, because the signals change, and there's an understanding of what it is, and the appreciation of what the shape and needs of the music just change. And you cannot know that until you're in it. You just can't.

- Paul Robertson, *Towards Silence* Project Leader

In Chapter 6, I investigated the process of ensembling by looking at how musicians' beliefs regarding what activities and behaviors increased the likelihood of ensemble, given increasing constraint, evolved through an iterative process of exploration. I paid particular attention to moments in which expectations were surprised and reversals in the plot took place, leading participants to *discover opportunities* for performing their work together in new ways. I suggested that the musicians' shared aspiration to ensemble and to realize the composer's vision caused them to address constraints in a special way, and described some of the new practices that emerged. That interpretation of their work process emphasized a fairly pragmatic approach to collectively addressing the difficulties of increased constraints.

In this chapter, I propose a different interpretive approach, one that looks at how participants *generated potentialities* for performing their work in new ways, enabling new practices to emerge. I offer this approach as an alternative way of investigating and understanding how ensemble was made possible in stretched conditions. Just as participants use the methods of ensembling to generate variation, engage in dialogue, and bring divergent ideas into combination, I use methods of ensembling to disturb, disrupt, destabilize my first interpretation, and to initiate a new conversation. My intention is not to contradict findings from Chapter 6, but to expose my still nascent and emerging "understanding" of the complex phenomenon of ensemble to alternative ideas and interpretations. By attending particularly to rough edges and loose ends within my previous analysis, I hope to avoid too-tidy resolutions of my research questions, to thereby avoid underestimating the activity that is the focus of my observations. If there are apparent paradoxes, or other "oddities", in what I have observed, in this chapter I aim to elevate them and allow them to resound fully, not resolve them.

As previously discussed in this thesis (see Chapters 3 and 5), musicians typically

begin work on a new score by building their knowledge of the parts and how those parts relate to an overall structure, interpreting the composer's signs, and learning to playing the right notes at the correct tempo. While informants told me that they don't usually separate technical tasks from musical or interpretive tasks in practice, their work demonstrates that they tend to focus first on mastering foundational capabilities before they begin to generate new difficulties for themselves and to explore alternative interpretations of the music, including ways to play *out* of time. In this latter phase of work, they increase their familiarity with the architecture of the music and its boundaries and generate potentially infinite variation that expands their capabilities for understanding and performing the music. I mimic these phases in my analysis. In Chapter 6, I played the data "in time," perceiving and constructing an iterative work process, investigating the parts of the work, and interpreting participant signs along the way. Now, I play *in relation* to time, exploring some alternative interpretations of participant actions, in order to deepen our familiarity with ensembling processes and expand our capabilities for understanding its performance.

To show how participants generated potentialities in their work together, I use two key features of ensembling as frames for interpreting their actions: openness to uncertainty and reconceiving. Openness to uncertainty is a variation on ensembling behaviors that I propose based on my observation in this study. It combines the openness with which participants meet the work and contributions of others and the practice of inviting and sustaining a degree of instability in the process in order to generate new conversations (Austin and Hjorth 2012). Reconceiving is described in theory as a practice central to ensembling (see Austin and Devin 2003, Austin and Hjorth 2012, O'Donnell and Devin 2012). When group members reconceive, they generate new, unpredictable ideas out of the materials at hand (Austin and Devin 2003). In the next section, I describe what I mean by these practices in this context, and how the first creates space in which the second can occur. I then revisit key moments in the process in which I observed examples of these activities. I consider how participants' actions in those moments opened the process to uncertainty and to the potential for reconceiving to occur, and how that interruption altered the work, and the musicians' understanding of the work, that followed (sometimes also the work that preceded).

This interpretive approach adds to our understanding of how ensembling was made possible in stretched conditions, specifically addressing some work methods suggested by

prior analysis but begging more nuanced exploration, namely subliminal technology engagement and the practice of collective leadership. It also offers an alternative way of thinking about how participant beliefs came into being, through the recognition of potentiality, rather than as evolving through practice. In some ways, the prior analysis told a tale of a process of elimination: participants explored potential responses to constraints, in order to hone in on the response they felt best helped them achieve their objectives. This approach calls to attention participant strategies for expanding the range of possible actions. I suggest that the activities of opening the process to uncertainty and reconceiving can be considered as inciting or energizing acts that call new possibilities into being, possibilities that increase member autonomy, competence and relatedness (three psychological needs, proposed by Ryan and Deci 2000, that support intrinsically motivated, or self-determined, behavior). As such, these activities are also examples of entrepreneurial leadership (Hjorth 2005). I summarize by reflecting on the ways in which this alternative interpretation expands on prior analysis to increase our understanding of ensembling while inviting further variation.

Opening to Uncertainty

Opening the process to uncertainty, or sustaining an attitude of openness to uncertainty, is a phenomenon I observed in the work. I interpret it as an example of practice that combines the methods of opening the process to the emergence of consent and living with uncertainty or instability—in some cases actively generating or sustaining that uncertainty. As I described in Chapter 6, I frequently observed instances in which group members proposed and explored ways in which to address changing constraints and find the best way forward. However, I also observed instances in which project participants met difficulty in their work process with acts that *deferred* address or resolution, leaving the difficulty exposed. Doing so, they sustained the uncertainty inherent in working collectively towards an emergent outcome under unfamiliar conditions and intensified constraint. They kept the process open to possibilities yet unimagined or unforeseeable.

Members of creative groups are often concerned with the rate at which they converge on a form or outcome: if too soon, they risk converging on "choices that might preclude better outcomes" (Austin et al 2011: 12), or that emerge from within the makers'

"cone of expectation" and therefore fall short of generating valuable novelty (Ibid: 13). As Austin et al (2011) demonstrate with a 20-case study of innovation processes across industries, creative groups intentionally invite or generate "accidents", or use other strategies for opening their processes to variation, in order to realize as many emergent outcomes as possible within the allotted resources (e.g. time, budget). In this way, they seek to counter movements towards convergence and to provoke choices beyond those they can predict in advance. Boland et al (2008) describe how architect Frank O. Gehry defers "crystallization" of a design in favor of keeping ideas flowing in a "liquid state" (18) in order to invite collaborators to generate possibilities for realizing ideas in material form and to set up the expectation of continues change (i.e. innovation). Doing so, Gehry also keeps his process open to new ways of addressing constraints. Boland et al (2008) provide an example: a request for front and back entrances in a multi-tiered classroom introduced a new constraint mid-process. Embracing that constraint opened up the possibility for "unexpected design elements which not only met the constraint, but strengthened the appeal of the building…and opened the way for a dramatic aesthetic element." (21-22). Across these examples, deferring closure while opening creative processes to uncertainty unleashes a generative force (Austin et al 2011; Boland et al 2008; Yoo et al 2006).

From the theoretical discussion of ensembling in Chapter 2, we know that collaboration-as-conversation involves group members in the activity of opening themselves—with a quality of release—to the ideas of others, receiving those ideas as material of the collective work (Austin and Devin 2003, Austin and Hjorth 2012). Doing so, groups frequently invite unfamiliarity, multiplicity, difference, divergence, into their processes of creation, making for processes that are impossible to plan, anticipate or control. They do so in anticipation that opening themselves to divergence and difficulty will generate the "energy that propels the process" (Austin 2000: 20) and bring new ideas into being (Austin and Devin 2003). In Chapter 5, I described how informants address difficulties in their work process by opening the work to multiple possible ways of addressing the problem, while allowing the solution (or consent around a solution) to emerge spontaneously in the work. As Robertson said, this is natural territory for string quartet musicians: "what might appear from the outside to be an incoherent kind of continual exploration and discourse and debate and divergence is my natural territory. That's what a quartet should feel like, to me." His description suggests that if discourse, divergence, and uncertainty are not part of the work, then a different kind of work,

unnatural to string quartets, is happening.

Just because it's "natural" doesn't make it comfortable. It's no easy thing for a performing artist with a fixed deadline (e.g., a sold-out concert) to be uncertain whether they are capable of performing as promised. Their reputation is at stake; it is career "life or death." At the same time, we learned in the last chapter that delivering a performance that is perfectly coordinated but lacks the qualities inherent to *string quartet* music (e.g., the struggle of four voices coming together and the spontaneity of play), also puts our informants' identity at stake. They repeatedly demonstrate a preference for opening their process to uncertainty, despite the risk of failure to arrive at an appropriate collective response, rather than relying on dominant logics to lead (a conductor, a metronome, an individual member), in order to invite the divergence and dialogue that energizes their processes and generates special qualities in the outcomes.

The task complexity and work conditions that the *Towards Silence* project presented infused participants' work with inherent uncertainty. As they embarked on this project, the musicians could not know for sure that they would be able to realize the composer's vision (or producers' interpretations of that vision), and be able to become an integrated ensemble while seated apart. There are, as far as the performers knew, no other musical compositions for four string quartets arranged in challenging spatial configurations. They did not know if they could achieve a foundational level of coordination in their work across architectural barriers. The music on the page might have been unplayable. Until they began to work together and in concert configurations, they had no way of anticipating how difficult it would be to organize as a group of 16 quartet musicians, what the score would sound like, and what they would be capable of doing in stretched and variable conditions. This uncertainty, combined with time-constrained rehearsal opportunities and pre-sold concerts (i.e., a non-negotiable deadline), might have provoked stronger urges for planning and resolution. Participants were naturally eager to know how difficulties would be addressed, or to generate solutions and prepare alternatives to ensure they would be capable of performing. However, when such urges arose, members, differently and at different times, resisted the act of compromising their beliefs and preferred methods to reach closure early and achieve some certainty. Instead, they redirected group efforts to the task at hand—rehearsal—and let uncertainty remain. We explore these moments, and the possibilities they generated, in this chapter.

Reconceiving

Participant actions that opened the process to uncertainty appeared to create space in which another method of ensembling could occur: reconceiving. The practice of reconceiving is particular to collaborations that exhibit the quality of ensemble (Austin and Devin 2003). Makers reconceive when they combine the contributions of colleagues with their own ideas to create wholly new ideas that are greater than the sum of contributions and beyond what any one member of the group could have anticipated (Austin and Devin 2003). Reconceiving happens spontaneously in groups that routinely engage in work as a dynamic conversation in which no one person or logic dominates, but all members of the group participate as equals (Austin and Hjorth 2012). It requires participants to be open to others and to the emerging dynamics of the conditions of their work. It represents an alternative to other forms of collaborative work, for example, work in which diverse or conflicting ideas give rise to negotiation or compromise, in which "the difference is split" and ideas are modified to accommodate one another; or work that amounts to a competition out of which one logic emerges victor, either on merit or on social grounds such as member clout or rank. Reconceiving, on the other hand, thrives on a multiplicity of voices, born of the instability that keeps multiple possibilities alive until the group converges on one, and sees conflict and constraint as opportunity to imagine new alternatives.

While reconceiving is inclusive of the actions and ideas of others, it is not necessarily additive. Ideas do not always follow from one another, and provocations or leaps of imagination occur. Reconceiving is, however, always a response to the work at hand that recognizes the conditions and participants in the work, even as it may introduce new ways of perceiving and relating to those conditions. Reconceiving can only succeed in directing the energies of the group in a new way if the group is prepared to realize the proposed ideas' rightness in the moment. Robertson refers to this as the "moment of consent", which he described as follows:

> …the fact of the matter is that everything you do is contingent upon the conscious or unconscious, tacit or implied acquiescence, agreement and resolution of your colleagues. So in practical terms, you cannot decide the tempo unless you have in

> the act of deciding it actually created a situation, sometimes overtly, sometimes implicitly, that your colleagues are willing and able and glad to play at that tempo.

Reconceiving happens with sensitivity to collaborators and to the situation at hand. In some of the examples I will soon discuss, I use the idea of reconceiving to understand participant acts that call attention to behaviors already latent in or emerging from the work, in order to direct group members' attention to these behaviors and increase the potentiality for their occurrence on a grander scale.[65]

Difference between reversals and reconceiving

In my previous analysis, I framed moments in the work process in which reversal of participant expectation occurred as discoveries. For instance, Paul believed at the outset of the project that performing with the click-track would be a "negation of everything" he believes in and practices as a string quartet musician. When the UK quartets used the click-track to play in the staircase at the Synagogue, Paul heard the result and declared it "ravishing." The US participants experienced the click-track as "military" until they realized that the tightness it afforded in synchronizing their work enabled them a degree of freedom as well. Participants discovered that playing in time with the support of the click-track increased their capacity to play, where previously they believed that the military character of the click-track would diminish that capacity. While participants initially wished to sit close together, in anticipation that being seated too far apart would diminish their capability for hearing one another, they discovered, once they had reached a foundational level of familiarity with the score and one another, that sitting too close to one another diminished their ability to hear the music.

These reversals of expectations and beliefs in regards to what actions would best serve the composition and make ensemble possible were based on learning new information from what just happened. Acts of reconceiving, however, are departures from what went before. While they incorporate the material of past efforts, they introduce a

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[65] Jazz legend Miles Davis is a musician who practices this strategy for bringing new possibilities into the work of ensembles he leads. By directing his attention to behaviors and ideas he sees demonstrated by his colleagues, and supporting those behaviors and ideas, he directs the group's attention similarly, encouraging them to develop those behaviors ideas further and make something new. See Austin and Størmer 2008.

wholly new trajectory. While reversals cause us to revise our understanding of what's possible given constraints, reconceiving revises our understanding of what can *become* possible, if we change the way we think about what we're doing. Reconceiving calls new possibilities into being. I use this concept of reconceiving to suggest new ways of understanding key moments in the process that made ensembling, and the emergence of new methods for ensembling, possible.

In the next sections, I provide a set of examples of both opening to uncertainty and reconceiving, and how these acts altered the work of participants and made new practices possible.

Moments of opening to uncertainty

In several instances, I observed participants open their collective process to uncertainty, or make choices that sustained rather than resolved uncertainty. Doing so, they resisted the urge to converge on a solution or achieve closure early in the process, before they had sufficient understanding and appreciation of the task. Opening the process to uncertainty created space for iterative explorations to occur. But it also introduced a counter-movement to the activity of trystorming possible ways to respond to constraints and making decisions on how to proceed. It suggested that participants weren't necessarily eager to "solve" the problem: to eliminate difficulty or to achieve stability in their process. Rather, in some cases they believed it better to delay address, or to welcome, and cultivate, a degree of instability. This practice altered their work together, creating opportunities for reconceiving and new methods of ensembling to occur.

Example 1. Believe it can be done and keep rehearsing

The first instance alerting me to this other kind of movement in the work came in my first interview with Paul Robertson, following the two days of pre-rehearsal that took place in February in the UK. Paul first expressed his concerns as to whether they would be able to realize the distributed performance they had promised the producer in New York, then

shifted his perspective.

> Paul: …[The New York premiere is] going to be a great event, there's no doubt about it…Still don't know how we're going to cope with the actual…coordinating of it across space.
>
> Q: It's interesting to see, because you're rehearsing it one way…so that it works in one configuration, in this rehearsal space, [without] knowing if that's going to work in the performance space.
>
> Paul: Well, I don't know how else to do it. Because [John Tavener's] written a score that is completely coordinated and orientated as an integrated ensemble, but then invited us, or actually *demanded*, apparently, that we sit apart. There's actually an essential contradiction there…At the moment, I don't see any way that we can attenuate this shape [of a circle]. I think the most we might be able to achieve if we had a big enough space, a suitable space, is to sit in a cross form, with the four quartets facing inwards to each other. So you're like a circular—I was going to say orchestra for a minute, but it's not an orchestra—it would be a circular ensemble of 16 players…Sort of four clusters, like four nubs. But that's not what [John]'s asked for…I'm going to take a lot of convincing that anything beyond that is possible.
>
> …The tricky thing in New York [is that] we've actually committed to do it on four floors. Because Ivo [Jan van der Werff, Medici's violist] went [to the Rubin Museum], he had the score and—it's hard, it's hard to make that judgment, I hope he wasn't over-eager to please, but —he said to [the producer], we can do it. So they've sold tickets now on the basis that we can do it in that shape…We've committed to do it one way, and [the Rubin] commissioned the piece on the understanding which I gave them, which I had from John, that it was a piece to be played across space. And it's not a criticism of John. I had imagined that he would be practical about that. But I think he's probably many things, but at some level perhaps not practical. Maybe. Maybe I'm doing him an injustice. It may just be that it can work in a way that we haven't yet sussed out…You never know what's possible until you actually try, and we're not equipped enough to try it yet.
>
> …So, it may be [possible]. Because I know from my life in the quartet that things that were simply impossible when first learning a piece become easy when you know it,

> because the signals change, and there's an understanding of what it is, and the appreciation of what the shape and needs of the music just change. And you *cannot know that* until you're in it. You just can't. So I'm very hesitant before I would even think a critical thought about the composer, particularly a great one like this, because, you know, sometimes they're an awful lot more capable than one might imagine!

While Paul began by voicing several concerns regarding whether or not participants would be able to realize the composer's vision and meet the commitments they've made to producers, he ultimately accepted the uncertainty as a natural part of working on a new piece, choosing to trust the composer and believe they would discover a way to make it work, once they had more experience with the music. He speculated as to what kind of configurations he believed might be possible, but then opened up again to the possibility that at some future point that belief would change. While he had no way of knowing if and how it would be possible for them to attenuate their configuration or play across four levels of distance, he continued to focus on the work at hand.

This attitude of openness to uncertainty, accompanied by a trust for the process of learning a new composition and for the composer, affected the way Paul had responded, during the two days of pre-rehearsals preceding this interview, to questions from the other participants regarding how they would address the difficulties of performance constraints. At the start of the first day's rehearsal, Q4's violist Drew Balch asked Paul directly whether or not a click-track was being considered as a possible solution, and Paul admitted he was considering it. However, he never mentioned the click-track, or any other kind of "solution" to the larger group during these two days. On the second day of rehearsals, participants launched questions regarding how they would take cues when they couldn't see one another in the performance space. Paul said they would have to adapt cues to each space they would be in "on the day", in rehearsals preceding each concert. But he didn't suggest *how* they might address cues, nor did he open the discussion to generating possible responses. Instead, he redirected their attention to work in a circle configuration, with a metronome, as a way to practice the music "for now".

Considering Paul's behavior in rehearsals along with his interview, it seems he, as

project leader, intentionally discouraged the group's desire to resolve uncertainty, delaying such efforts until they had gained more understanding of the music. Participants' early speculations about how they might achieve performance were motivated by concerns arising from inexperience with project conditions. Drew asked about the click-track before the group had played one note of music together. Paul's action favored an approach in which methods of address emerged from being "in" the music (and in the physical performance space), from having a deeper appreciation of the shape and needs of the music, and being "equipped enough" to know what's possible.

Example 2. Try "natural birth" first

I observed similar behavior in the second phase of the project, in which Cathy Thompson, Medici's second violin, was acting first violin in Paul's absence.

> *The Medici String Quartet arrives at the Rubin Museum in New York City, the Sunday before their Thursday evening premiere concert, to begin preparations for rehearsal. After touring the Spiral staircase with Ruben Museum producer Tim McHenry, Medici gathers in the Museum café to discuss how they might address anticipated difficulties in performing across a four-floor split. After debating the potential efficacy of several proposed technical solutions, including sound cues, light cues, and mirrors, Cathy redirects the conversation.*
>
> *Cathy first confesses she's been up nights thinking about this problem. She then admonishes them to put problem-solving aside, and suggests they keep an open mind: they will simply have to try things as a larger group. Perhaps, and ideally they agree, they will be able to address the difficulty of playing across the horizontal and vertical divide without any kind of artificial support. Maybe "ears will simply have to listen harder," Tim suggests. Ivo concludes the conversation cheerfully, if somewhat flippantly: "It will all be fine Friday morning."*

In this example, Cathy puts a halt to theoretical troubleshooting aimed at constructing an artificial solution to the anticipated problem of spatial distribution in advance of the group's work together. Despite her own anxiety regarding if and how they

will be able to meet performance expectations, she re-opens the process to uncertainty, and, like Paul, suggests that they will need to know more before they consider decisions. Tim and Ivo affirm this approach in different ways. Tim admits that an organic solution may be much simpler to achieve than anticipated. Ivo deflates anxieties by making a joke, and putting their concern into perspective: the problem seems critical now, but one way or another will be resolved in time. This willingness to remain open to uncertainty is more remarkable when we consider the time constraint participants were under. While Paul was working with a comparative luxury of time in the previous example (UK pre-rehearsals for concerts that would happen four months later), this discussion happened on Sunday afternoon, in preparation for a Thursday evening sold-out performance, and before the four participating quartets had yet met or begun their work together.

Cathy's resistance to early resolution created space for the "struggle phase" to happen—a phase of the work that she and others later attributed with increasing the quality of listening and dialogue between the US group members. While keeping the process open to organic explorations, Medici members also made plans with the Museum's audio/visual staff to prepare the click-track for a possible trial on Tuesday, keeping open to artificial support as well. By opening the work to alternative explorations and delaying closure, participants allowed themselves the opportunity to learn from trystorming with and without the click-track. Over time, the group gained experience that enabled them to converge around the best possible solution given constraints. Tony explained: "when we got the click-track, there had been a certain—having *arrived there*, tried everything else—a certain relief. But [that experience] also made it easier." When the US group decided to use the click-track, they did so on the basis of a deeper appreciation of the shape and needs of the music, and on negotiations that engaged multiple perspectives before converging on a response. They also did so with a wholly different approach to working with the click-track than the approach with which they started (a shift I discuss later in this chapter).

Participants were not always aware that "opening" was deliberately being orchestrated. Some group members responded naturally to this approach, while others resisted uncertainty, expressing nervousness with the direction in which the group was being led. In the US, quartets accepted uncertainty to start. They organized themselves in a circle to begin work, occasionally raising discussion that anticipated problems with spatial

distribution in the staircase, but largely focused on getting familiar with one another and the music and comfortable with delaying resolution. However, as soon as the US quartets experienced the performance configuration, Q4 became eager to implement the click-track, as they suffered the greatest difficulty situated at the bottom of the staircase. They quickly expressed frustration with the struggle approach that kept alternative possibilities alive. In the UK, members of Q4 discussed Paul's leadership approach with some skepticism. Q4 cellist Jonathan Bloxham felt that explicit leadership of the process was needed and lacking, and led to an "unfocused", and for him unsatisfying, rehearsal. Q4 first violinist Simon Hewitt Jones perceived a "looseness" in Medici's approach to managing rehearsal, but he experienced it as permission to try out ideas and make mistakes. While he agreed that Paul seemed to resist the role of leader, he interpreted Paul's behavior as a cue that a different kind of leadership—one he described as "anarchy"—was worthy of exploring in the aesthetic of the music. Nervousness and resistance indicate that discomfort was happening; that these moments of opening to uncertainty were in fact inviting uncertainty into the process, prompting some divergence in member opinion regarding the best way to respond to uncertainty: whether to critique it as ineffective management, or to use it as opportunity to explore alternative behaviors.

Moments of reconceiving

Along with trystorming and evaluating iterative efforts for addressing stretched conditions post hoc, I observed participants generate new potentialities for future work by reconceiving their constraints and behaviors. I propose two ways of interpreting how reconceiving—an activity that revises our understanding of what can become possible by changing the way we think about what we're doing—happened in this work process, and offer examples of each. In the first set of examples, I show how members responded to constraint (or others' agitation with constraint) by reframing the constraint to enable new responses to it. In the second set of examples, I describe instances in which group members perceived a latent shift in activity, and, by calling attention to that shift, created the possibility for the activity to flourish and develop. These examples are representative of frequent occurrences, rather than comprehensive. I then use these examples to suggest another way of understanding how participant beliefs evolved over the life of the project.

Reframing the constraint

As participants addressed changing constraints throughout the process, they often named those constraints to express different ways of understanding the kind of difficulty they were experiencing. Each naming or reframing offered cues as to how they might collectively respond to the constraint in the next iteration of work. The US group's evaluation of the click-track provides the best example in which a succession of naming and reframing of constraint occurred, setting up different expectations, or trajectories, for the work. After playing with the click-track for the first time, Lina Bahn, second violin of Q4, named her experience with the click-track as "military", prompting a discussion of how the rigid tightness of the click constrained temporality (the musicians' relationship with time), and suggesting they look for other ways to develop musicality. Fenella Barton, Medici's second violin in the US, countered by calling the click-track "good discipline", suggesting that the group think of it as a method by which to demonstrate professional competence, rather than as a limitation. Tony Lewis, Medici's cellist, suggested that as they got familiar with the click-track, they could "expand it" (expand the ways in which they responded musically to the fixed pulse), again altering expectations for the kind of work they might engage in. Doing so, he reminded colleagues that they could practice the same freedom in their work with the click-track as they would with a shared pulse, using it first to play in time, then pushing or pulling against the pulse to expand temporality and musicality. Again, potentialities increased. Medici's violist Ivo took the biggest leap in reconceiving this constraint. He framed the click-track as integral, rather than antithetical, to the aesthetic of the composition, by saying, "The point in Tavener's music is an absolute inner pulse with stillness around it." By transforming the click-track into a means by which to access the architecture of the score—the absolute inner pulse—he invited colleagues to embrace temporal constraint as an aesthetic component critical to the developing musicality of the piece, rather than as an obstacle to work around.

Q2 first violin J's response to the click-track offers a counter-example, in which naming the constraint made address more difficult rather than opening up new trajectories for the work. He argued that the click-track took away the struggle of four quartets coming together across space, which he considered the essential quality of the project. He positioned the click-track as an obstacle to realizing that special quality and to the dialogic

relationality of ensembling. Had this framing of the constraint captured the group's imagination, they would have found it difficult to proceed with methods of address that included the click-track. While this framing may have eventually opened up an alternative route to realizing objectives, difficulties with early efforts to do so had so far proved frustrating and divisive.

Calling attention to new movements

While the prior examples describe ways in which participants opened their processes to new possibilities by reframing constraint, I also observed several examples in which reconceiving occurred in response to members' perception of latent activities or shifts in the current work. During the first full group rehearsal in the US, Cathy praised the group by saying: "I feel a sense of leading and not leading, all of us." Doing so, she called attention to activity she was already experiencing in the process (and which she had not experienced in UK group activity in February). I observed this phenomenon as well: more participants were active in discussions regarding interpretation, sorting out leads, and asking for the information they needed from one another. They talked and listened across quartets, rather than seeking direction from Medici.

In her role as the primary leader of the process—a position she stepped in to somewhat reluctantly and by default (according to her own claims), being the first violin of the first, and senior, participating quartet—Cathy opened the door for more of the activity of all "leading and not leading" to continue, which it did. When the quartets distributed themselves across the balconies of the Spiral, each group continued to take active responsibility for communicating with others across the divide. Given the constraints in that configuration, this practice of leading and not leading together became critical. Cathy could not lead the full group, as she could not be seen by more than the members of her own quartet and Q2; the same was true for any other member of the group, that they could only be seen by one or two other quartets aside from their own. As Cathy described to me later, no one person *could* initiate leadership, or a delay would have been created in the relay of communication between groups. Instead, members of each quartet needed to learn to lead *together* at the same time. Collective leadership flourished in this phase of the project, and several informants attributed this activity to Cathy and Medici's approach (as project

leaders) to "creating space for everybody to feel they could contribute" and to feel "absolutely equal" in that effort.

Responses to the click-track afforded other examples of generating new potentialities in the work from emerging shifts. Fenella admitted that she didn't think "play" would be possible to achieve in the Rubin Museum configuration, until she experienced it emerging through the freedom made possible by the click-track. Recognizing play emerging, she yielded to that experience in performance and "really enjoyed it." While she wasn't continuing on with the group in the UK, her expectations of what was possible had shifted the way in which she was working on the project. Ivo suggested the development of an entirely new practice in his recognition of the way in which the group was beginning to work with the click-track over time, which he described as follows:

> What I find with this idea of "the pulse", which can be very intrusive—I think, for me anyway, I feel we're getting used to it, and not having to lead quite so much. You know, we have a sense where [the pulse] is, because we know the music better. So when we started off, you know [*he puts a finger in his right ear, simulating the click-track head piece*], you hear this thing, and you think, "Oh, we've got to be with that absolutely!" And now, yes, we're probably still with it as well if—hopefully a lot better than we were. But in a more relaxed fashion. Which enhances the music, I think.
>
> …Perhaps…[*He pauses*]. No, I was thinking perhaps you could have fewer beats. You know, at the moment we have every single beat. Perhaps you could have one beat per bar. But, no, I think you need that beat. But it becomes more [*he gestures behind him, over his shoulder*]…subliminal, if that's the right word…It's like a heartbeat. It's there, and you can be aware of it, you can focus your awareness on it. But because you're used to it being there, you can withdraw your awareness from it…And sometimes, yes, you realize it's slightly out [of time], so you have to accommodate it. But on the whole, it becomes second nature, because you're used to it. So it's there, and you automatically respond to it, without having to consciously do it.

As the UK group got better at working with the click-track, Ivo observed that they had begun to work with it in a more relaxed fashion, allowing themselves to withdraw their awareness from it, transforming what was once intrusive into something as natural as a

heartbeat. On the basis of observing this shift in practice, he revised his understanding of what was needed to support ongoing work, and encouraged group members to continue to develop this new approach by drawing their attention to it.

There are parameters for reconceiving to consider. Not every framing of a constraint or latent activity will stick. Reconceiving works best when it meets with a spirit of consensus, suggesting directions for future work that are in line with those with which the group is ready and willing to practice (or is already practicing). As I mentioned before, we can liken it to the ensembling method of opening the process to the emergence of consent: as Paul argued, in an ensemble "everything you do is contingent upon the conscious or unconscious, tacit or implied acquiescence, agreement and resolution of your colleagues" (O'Donnell 2006; Austin and O'Donnell 2007: 6). Reconceiving the event at Winchester to accommodate television and radio recording crews, as Paul and Tony did, without buy in from the larger group, generated a disruption that violated the group's shared purposes and expectations for their work together, and caused several members to reframe their commitment to the project in unhelpful ways. Q4 violist Drew called his work on *Towards Silence* "a job" rather than work born of "passion and love" from that moment forward, and visibly withdrew from collective leadership. (I discuss this disruption further, and other things that cause ensembling to break down, in Chapter 8.)

Participant beliefs change when members experience unanticipated qualities of ensemble

These examples of reconceiving, like the examples of trystorming, tell a story about how participant beliefs change over the course of the project, in this case through the recognition of potentiality rather than through accumulated experience. Consider this example in which a participant's beliefs change when he experiences an unanticipated event:

Jonathan, Q4's cellist in the UK, didn't believe the open dialogue that group members earn when ensembling would be possible to achieve given the project time constraints, and privately advocated for a "dominant leader" approach to organizing their work together more efficiently. However, in rehearsals for Vivaldi's *Four Seasons*, he experienced an

opening. Q3 violinist Anna Harpham asked him directly for feedback on her solo. During their exchange, he felt an "open flow" with her, and expressed his excitement about this moment to me in a later conversation. "Those [kind of exchanges] take time," he reported. Having experienced the exchange, it altered his behavior. While he had critiqued others for offering feedback to the soloist in this work setting, he now ventured feedback of his own, framing it as appropriate action in the context of open exchange.

Jonathan didn't set out with expectations to ensemble; he believed it was unlikely in this project due to the constraint that limited time placed on the potential for members to build sufficient trust. Fenella didn't set out with an expectation to play. Cathy couldn't predict how the US quartets would engage in leadership, and Ivo couldn't anticipate the way in which the UK group would work with the click-track over time. Events of ensemble, of play, of collective leadership, and of subliminal technology altered these members' beliefs in what *could become* possible in their ongoing work together. Evidence of these new movements in the work caused participants to reinterpret the way in which they had thought about their work, and changed the way in which they proceeded.

This interpretation of how participant beliefs evolved suggests a new movement to the causality I previously proposed as representative of participant beliefs: for instance, their belief that certain behaviors would lead to the emergence of play. In this interpretation, the surprising event of play inspired Fenella to believe it possible and pursue it. A quality of ensemble emerged in Anna's open invitation to Jonathan, making it appear possible and worthy of pursuit, altering Jonathan's belief as well as his behavior. The surprising event of collective leadership led Cathy to cultivate it's becoming. To represent this alternative understanding, I might re-organize the diagrams I proposed in Chapter 6 to illustrate looping effects rather than one-directional movements (see **Figure 7.1**): for example, collective leadership emerges in early stages of the work, persuading group members to believe ensemble (which is a collectively led phenomenon) is possible, and encouraging increased engagement in collective leadership behaviors. Those behaviors develop, intensifying group beliefs as outcomes of their iterative work together increasingly exhibit qualities of ensemble.

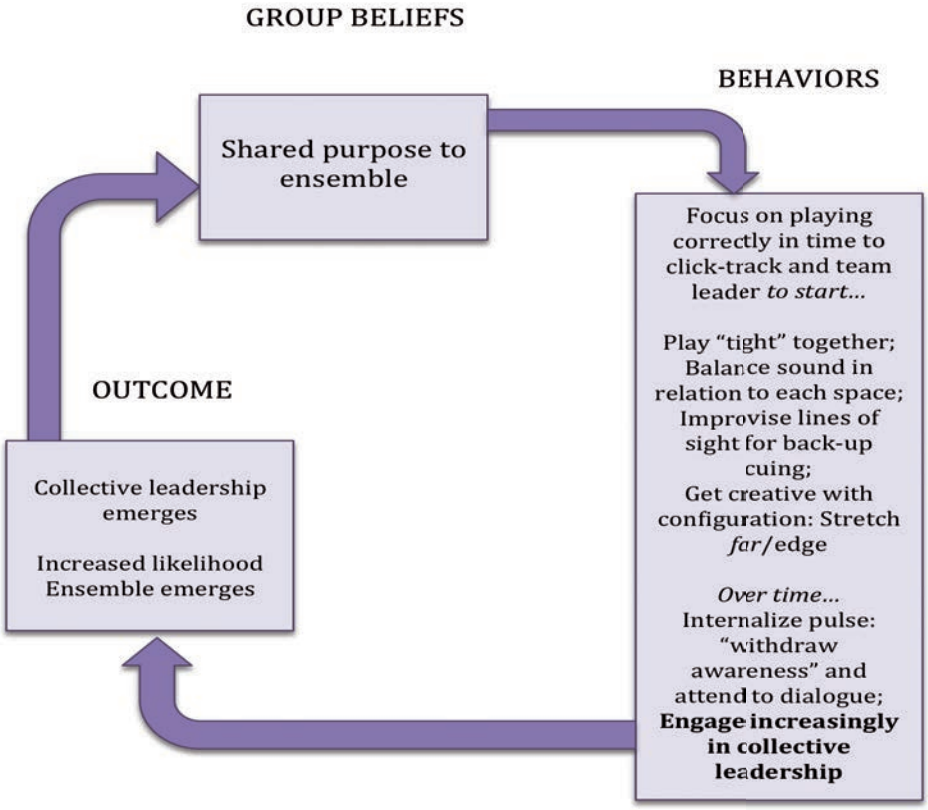

Figure 7.1: Alternative movements of Ensembling

NEW POTENTIALITIES

By opening the process to uncertainty, participants created spaces for reconceiving to happen. They reconceived constraints, behaviors and potential behaviors. Reconceiving, in turn, generated the potential for new practices to emerge and flourish, such as the practices of subliminal technology engagement and an alternative route to collective leadership. These practices became critical to increasing participants' capabilities for ensembling in stretched conditions, and for increasing the likelihood that ensemble would emerge. While these practices were in evidence in my description of the musicians' iterative work process in Chapter 6, we are better positioned, through this analytical framework, to understand

how these practices emerged and what qualities they brought into being. I use Faulkner's study of the work of studio musicians (1971) to understand the motivation for exploring alternative practices, and Quinn and Dutton's discussion of the emotional and motivational dynamics of coordination (2005) which incorporates Ryan and Deci's self-determination theory (2000), to suggest that these activities are examples of energizing acts that call new possibilities into being by increasing member autonomy, competence and relatedness.

Autonomy, competence and relatedness

Developing their theory of self-determination, Ryan and Deci (2000) describe three psychological needs that, when satisfied, enhance (and when neglected, diminish) self-motivation and well-being. These are (1) autonomy, the belief that ones behavior is self-determined or self-directed, (2) competence, the belief that one can effectively accomplish goals, and (3) relatedness, the experience of connection with others to whom one wants to feel connected. Autonomy, within this framework, is not meant as an experience of independence and at odds with relatedness, but rather is best experienced collectively, with others (Ibid: 74). When these three psychological needs are met, individuals are more likely to invest effort in mastering new skills, to seek novelty and challenge, and to energetically apply their talents responsibly to the task at hand (Ibid): all factors which enhance productivity. When these needs are thwarted by "[e]xcessive control, nonoptimal challenges, and lack of connectedness", a lack of initiative and responsibility, as well as personal distress, results (Ibid: 76). Quinn and Dutton (2005), integrate this theory into their model of coordination as energy-in-conversation, asserting that experiences of autonomy, competence and relatedness increase energy in interactions between colleagues and improve their ability to successfully coordinate action towards the achievement of work goals. I use Faulkner's study (1971) to elaborate on the concept of competence in terms of how string quartet musicians think about and demonstrate competence when they work with constraints such as a click-track.

As I investigated how the musicians experienced and responded to constraints in their work together, I found ample evidence that autonomy, the ability to demonstrate professional competence particular to string quartet musicians, and the opportunity to experience relatedness within and between quartets, were of high concern to participants. I

use this framework as a way to explore how these factors particularly inspired the development of new practices of ensembling in stretched conditions. In the following section, I discuss how the click-track initially appeared to thwart these needs, and describe how reconceiving its role in the work created opportunities for participants to use the click-track to pursue and meet these needs. I then take a look at how new routes to practicing collective leadership developed in ways that likewise increased group member autonomy, competence and relatedness in stretched conditions. Analysis suggests these three factors are critical to ensembling, and that the pursuit of these needs leads to new ways of ensembling when constraints increase.

How the click-track threatens autonomy, competence and relatedness

> We're used to following something musical, whether it's someone's lead, or it's a conductor that: [*Ciaran waves his right hand fluidly*]. A conductor doesn't go like that: [*He makes sharp, rigid gestures with his right hand*]. He'll usually do something to show you *how* to play as well as *where*. Whereas a click is just showing you where…So the challenge is to try to be musical within a strict beat.
>
> - Ciaran McCabe, Second violin, Harpham Quartet

When initially implemented, the click-track was perceived as exerting excessive control, robbing musicians of their autonomy. As Faulkner reports in his study of studio musicians, the click-track constantly reminds the musician that he or she does not have autonomy, but must follow "the machine" (1971: 38). Judgments concerning timing are pre-determined by the click-track. According to Ciaran, the click-track altered participants' experience of time from a felt pulse to a mechanized one. Participants experienced it as routine and restrictive, decreasing their capacity for creative action; they frequently characterized it as a serious threat to their ability to be musical. When Paul introduced the possibility of the click-track in February, he differentiated between the activities of "listening" and "playing to something that's clicking", calling the latter "a negation of everything" in which he believed.

As Fenella suggested in her reframing of the click-track as "good discipline", and as Faulkner's study of studio musicians (1971) demonstrates, playing accurately to a click-track requires a high degree of competence; it is the work of a skilled technician. The ability

to demonstrate such competence has some appeal. Faulkner finds that studio musicians are frequently intrinsically motivated by personal standards and dignity to perform at full capacity regardless of the task they are asked to do or the standards of those they work for. Because of this, they respond to increased constraints, such as the speed at which they are asked to learn and perform new work and the unpredictability of work conditions, as an opportunity to achieve technical virtuosity. They can experience a rewarding sense of achievement by directing their attention to demonstrating technical precision, learning speed, stylistic versatility, and the flexibility to respond to different music, composers, conductors, colleagues and conditions (1971: 136). Becker (1963) calls this approach to work a "craftsmanship orientation", to distinguish it from an orientation towards "higher" goals of artistic autonomy and creativity (Faulkner 1971: 137). In this orientation, intensified constraints generate a kind of energy and excitement.

However, the craftsmanship orientation is not the preferred orientation of *string quartet* musicians. Faulker says that musicians orient themselves towards technical competence *when their artistic virtuosity is not being exercised by the work* (1971). As previously demonstrated in studies of string quartet musicians (i.e., Blum 1986, Steinhardt 1998, Austin and O'Donnell 2007), master players aspire to more than technical competence—a foundational aspect of their work—and focus their efforts primarily on expressing artistic virtuosity. They engage in activities that enable them to, for instance, make spontaneous revisions of opinion to an emerging performance that is born of listening and responding to colleagues with intimate awareness. String quartet musicians achieve a high degree of technical competence, such as playing with an external arbiter of rhythm, but, as Paul describes, it is the starting place from which other work can develop:

> When you're training as a musician, one of the starting places of competence, in our current—and it's a very recent piece of—history, is that you are expected to know how to play "in time." In other words, how to be accurate from an external measure of temporal accuracy. Which is normally the metronome….[*Paul demonstrates playing to a metronome*.] Now that's the kind of basic starting place of competency that you have to use, particularly if you are going to be in an ensemble where there is no external arbiter of what the music is. You have to start from a common understanding of what's rhythmically correct, otherwise you literally won't meet up

> from moment to moment. But of course it's also totally negating of the inherent beauty, musicality, poetry and expression of the music itself.[66]

Paul's description suggests that at some point, demonstrating technical competence becomes antithetical to artistic expression. He proceeded by explaining one way to transition from exercising technical virtuosity to developing artistic virtuosity: he described how pianist Sir Clifford Curzon's exercise of "destroying the music" by playing *out of time* to the metronome (a method discussed in Chapter 5) was a way of "externalizing the accurate arbiter of what the music was, and giving himself permission to be poetic around an external framework of accuracy." In other words, this exercise increased his capacity for being musical within a strict beat. In the beginning of learning a piece of music as an ensemble, the metronome can be helpful in increasing the group's capability for developing a common understanding of the music and a way to meet in time. But at some point working with a metronome, if musicians continue to use it only to play the music correctly in time, begins to diminish their capacity for developing and demonstrating artistry. The musicians need to figure out how to "become musical" in relationship to that external framework. Continuing to work in performance with a click-track as "good discipline" threatened participants' ability to pursue artistic virtuosity. Participants' debate over the use of the click-track for *Towards Silence* can be understood, in this light, as a debate over whether they were expected to be artists or technicians, the latter being at odds with their professional identity and ambition.

The click-track, which replaced the collectively felt pulse with a mechanized one, also thwarted participants' ability to develop relatedness. It inhibited their ability to experience and express time through human mediation: whether a conductor or a collectively felt pulse. Finding the pulse, as I reported in Chapter 5, is a key method of ensembling and a way in which groups develop rhythms of interaction unique to them. Berliner, writing about jazz groups, reports jazz musician Chuck Israels' description of how establishing a shared sense of the beat by striking a groove, like collectively establishing a pulse, is a way in which musicians experience "a kind of emotional empathy" and develop a "relationship that is very intimate" (1994: 350). Operating as a dominant logic, telling them *where* if not *how* to respond, the click-track constrained their ability to be musical and

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[66] Paul was speaking to an executive group in Copenhagen, Denmark, December 2005, at which I was present. Quote taken from video transcript.

inhibited the dialogic relationality critical to ensembling (Austin and Hjorth 2012). Members of the Jasper Quartet[67] (Q2) described how the click-track inhibited their ability to experience relatedness with other quartets, compared to the relatedness they had developed while working in the Spiral staircase without it, during the "struggle phase":

> Sam: I mean, that was very different playing with the click-track then without—
>
> Rachel: Yeah.
>
> Sam: --because playing with the click-track, basically we all just watched J, because he was with the click-track.
>
> J: Right, in our group.
>
> Sam: In our group. And so we were [focused] just around J, and the click-track took care of the coordination [between quartets]. When we were playing without the click-track, we were much more paying attention to the two groups that we could see.
>
> J: Yeah, above and below [us, in the configuration].
>
> Sam: Above us and below us. And it was really important that we were communicating—
>
> J: Visually
>
> Sam: --visually with both of them, because the sound really doesn't work. There's too much of a delay, and you can't hear. And so it was very important that we were all—that we were coordinated both ways. Not necessarily that we were leading and they were following [*Sam gestures a lead with the left hand, followed by a response with his right hand*], but that we were both leading [*He then gestures with both hands simultaneously pulsing*]—
>
> Rachel: Yeah.
>
> Sam: Because if we started to try to lead, the group [directly] below us [Q4] couldn't see.

[67] Jasper Quartet members include J Freivogel, first violin; Sae Chonabayashi, second violin; Sam Quintal, viola; and Rachel Henderson Freivogel, cello.

J: Right.

Sam: So, it was important that everybody was going at it, you know, leading and following. [*He pulses his hands in unison.*]

J: So I think the difference with the click-track now…is, then, each ensemble is sort of focused around the person with the click-track. And then hopefully the people with the click-tracks are communicating, so—I guess it's going to be all the first violins eventually.

Q: So, you're communicating specifically with the other first violinists?

J: Yeah, I think basically. And, I mean, hopefully—What was nice about not having the click-track was it really felt everybody was working together. In a sense. It also created some issues that the click-track solved—So hopefully in working with the click-track, we can get the, sort of the communication that we had before it [*His colleagues nod in agreement*], with hopefully ease, more ease of playing together. I think that's really a goal for working tonight. That we still have the kind of musicality, and the—

Sae: Involvement.

J: Yeah, [involvement]. What really makes it chamber music. You know, even if we do have a click-track or if we don't.

Q: So, would you equate musicality with all of you being able to give more of your attention to listening to the other groups, or in a different way?

J: I think, to me…it's a little bit different. To me, being able to give our attention to all the other groups, it gives a little bit more—potentially it could give more sense of kind of breathing [together], and you have a little more creative license that you can take.

Rachel: And you're kind of responding to each other more, I think. That's what—I think we can get more free, and the click-track. But we're also kind of—

J: A little confined.

Sam: Yeah.

Rachel: --we're bound by that too…Hopefully it can be both good things [bound and free].

Sam: Yeah, to me the piece is about sort of a human experience—

J: Yeah.

Sam: --and the most human part of the piece is trying to put it together with these varying [constraints], and the communication that's involved in that. So I think that's kind of the essence of performing in this space, is that communication, which I think is kind of important. [*Sae nods.*]

J: It's something that makes it, actually, like, really fun to rehearse

In this discussion, members of Q2 describe the difference they experienced between playing with and without the click-track, as well as pointing to some ways in which they aspired to work beyond the confinements of the click-track. Without the click-track, Q2 experienced a high degree of interaction, both visual and aural, including the experience of leading *with* others. The click-track limited this relatedness, causing them to focus their attention on one person only: J. They describe their desire to now seek, with the click-track, the same kind of involvement and relatedness they experienced without, which they find essential to realizing the special qualities of "chamber music" (and demonstrating their competence as chamber musicians) and the human experience central to the event of the performance, as they interpret it. They hope, and seem to believe it possible, to develop relatedness and musicality with the click, but, as they are about to begin their final rehearsal before the premiere, have yet to discover how.

The click-track threatened participants' sense of autonomy, their ability to demonstrate competence as chamber musicians, and the relatedness by which they realize artistic virtuosity and meaning in the piece. However, by opening their process to uncertainty, trusting that unforeseen possibilities might emerge if they continued to pursue their objectives (as Q2 above describes), and by reconceiving the role of the click-track in their work together, participants were able to expand their capacity for creative action within increased constraint. They developed a subliminal approach to working with the click-track that increased their autonomy, competence and relatedness over time. I describe

how they did this in the next section.

Subliminal technology engagement: Using the click-track to increase autonomy, competence and relatedness

Q2's discussion of their work with the click-track hints at a change underway, in which participants were shifting from reactive to active engagement with constraints. Initially, the click-track was experienced as dominating and inhibiting, causing certain undesirable behaviors, such as withdrawing awareness of others in the group and focusing on one leader. After an initial learning phase, the musicians began to engage with the click-track differently. Q2, as an example, began seeking ways to recover collective involvement, and to increase their capacity to act despite constraints. By the third performance in the UK, Ivo observed that the musicians were working with the click in "a more relaxed fashion". He said the click had become subliminal, like a heartbeat, making it possible to "withdraw your awareness of it" and achieve the dual attention necessary to ensembling. Several shifts occurred to support this transition, in which participants transformed the role of the click-track from that of logistics manager to that of an enabler of conversationality and play: Ivo reconceived the click-track as an architectural support; this support inspired new understanding of the piece and released participants from the tension of technical demands to pursue artistry; participants used the click-track to increase relatedness within and between quartets; and participants combined their practice of feeling the pulse with the click-track to develop ensemble.

Ivo enhanced the potential for the group to actively pursue autonomy, competence and relatedness in their work together when he reconceived the click-track as an architectural support intrinsic to the aesthetics of the piece, which he framed as an absolute inner pulse immersed in stillness. As an architectural support, the click-track could be used as a tool to help participants perform the foundational work of playing in time together, while freeing them to develop and demonstrate other competencies. Ivo did not act alone in reconceiving the click-track. The shift was latent in how colleagues like Q2 were already searching for and experiencing new ways of relating to the click-track based on their desire to recover autonomy and relatedness in their work as well as artistry. Ivo articulated a reconception with which his colleagues were already eager to consent; in some cases, they

were already experiencing the shift.

In the US, Q3[68] reported on the way in which they experienced the pulse as an architectural support that enhanced the aesthetics of and their understanding of the music. It also released them from physical tension, increasing their capacity to listen:

> Andrew: To me it's this incredible sort of release of tension, like, not having to—because the piece itself is so relaxed and broad, that I think, you know, having to communicate so actively with the other groups was making it something that it kind of wasn't…It allows the piece, I think, to sort of breathe a little more. You would think that with no click-track there would be more room to have vibrato, and [*He sways his body fluidly*] niceness. But in a way, when we didn't have it, I felt much more pressure to be [*He makes a tight fist and tenses his body, pulsing*], sort of, on time.
>
> Keiko: Yeah, physically involved.
>
> Amy: Yeah, it's weird, because, like, a lot of times, with other kinds of music, the metronome kind of makes us feel like we're being put in a cage or something, because we can't do certain vibratos that are natural to us, and more musical. But in this situation—and I think this is the nature of the piece: trying to, like, free yourself of your ego, and, you know, your own personal issues—it kind of has freed us from, like, wanting to control things, you know? Everybody has to have this thing in their ear, and just follow the beat, and it's all about the pulse. And the pulse is what controls the piece…I'm not saying this couldn't be done, obviously, without a metronome. I think it definitely could…in a different staging. But I think in this situation it's going to be very effective, if we can just let go, and let the pulse and, like, the sound of the funnel sort of, like, take over, you know.
>
> Keiko: Yeah, the mental state of musicians affect a lot of the music itself. So if you are very relaxed, and if you're part of the flow, I think the music will speak by itself. Which is what we're usually trying to do….I found myself hearing better yesterday, with the click, because, as I said, I was much more relaxed, and I had more, well, basically it kind of allowed me to hear what's happening around me instead of going

[68] Attacca Quartet members include Amy Schroeder, first violin; Keiko Tokunaga, second violin; Gillian Gallagher, viola (absent from interview); and Andrew Yee, cello.

> 1-2-3-4-5 [*She tightens up and gestures in a staccato way as she counts*]. So, for me it was great.
>
> …
>
> Amy: Yeah, everything was much more clear and unified. I mean, like, once we got rid of all the, like, "We're gonna get lost in this section; who should we be following here?" you know, kind of stuff, we could focus more on the acoustics of the space, and, like, how we should each be playing different sections in order to get the balance right. Like, cause the form of this piece just passes off different rhythmical or lyrical motives through each quartet. So I think it's kind of our goal at this point to try to have, like, seemless transitions of sound, you know. And it's much easier to do that now that we're not worrying about, like, certain technical aspects of it.

According to Q3, the click-track released them from responsibilities for demonstrating technical competence, an effort which, given constraints, was introducing physical tension and qualities at odds with the aesthetics of the music. This freedom enabled them to shift their energy to exercising artistic competence: releasing control, listening, and developing seemless transitions of sound between quartets, in turn enhancing relatedness.

Other participants in the US reported experiences of increased relatedness with the click-track, primarily within their own quartets, but increasingly extending to other groups as well. Michael Jinsoo Lim, first violin for Q4 in the US said:

> Now, with the click-track, I think we're able to listen to our own group a little more…And then not have the worry of, 'Oh, am I together with quartet one?', because you can't hear them…You just sort of rely on the click to make sure you're lined up…[Then] there can be something, where there's a little interactive thing between quartet three and us…There's not as much response all the way from quartet one to four that we would have in a more normal configuration, but it's still there.

Q3 cellist Andrew used the phrase "electronic trust" to echo what Michael describes as the benefit of relying on the click-track to make sure quartets were lined up. Participants trusted both that the click-track would bring them together in time reliably, and that their colleagues would respond to the click-track appropriately, whether or not they could hear

them. This trust released them from worry, and freed them to explore other layers of relatedness through interaction, as possible.

Ivo and Tony also experienced increased relatedness between participants, both within and across quartets, as well as increased autonomy:

> Ivo: I think probably internally, within each quartet, [the click-track] probably makes the quartets play better together. In a sense. Because we have to be really aware of the first fiddle, and playing with them. So, on one level, we're more involved with the group, perhaps?...But on the other level, which I think is a *great* positive, is that we're not feeling we have to play out for the other groups to hear us. So the balance between the four groups is much better…and we can get a more translucent quality to the sound. Which is what I think Tavener intended.
>
> Tony: Yeah, we're actually playing what's written, rather than trying to force certain things to keep it together.
>
> Ivo: Yeah…Because we're not playing so loud, so actually we can hear the others more. So, I think, in a way, we're getting more input from the whole piece, you know—
>
> Tony: I mean to start I thought [the click-track] was, you know, it was a crazy idea; it would never work. But I think it has—it sort of works…
>
> Ivo: …Actually, in a sense, the click-track, I feel, is actually freeing us up. Which is interesting, because you would think it would totally lock you rigid. In a sense it does, but it keeps the whole thing together. But actually it frees us up in other ways.

Ironically, relatedness between quartets increased as they were released from the pressure to relate for purposes of coordination. The alternative forms of relatedness emerging addressed balance and conversationality. Both Michael and Ivo described how the click-track ensured that the quartets would be together in time; this "electronic trust" meant that participants could more or less trust the click-track to keep them together in time. When they no longer had to "play out" for others to hear them, they were able to better hear one another and explore the relatedness that comes from listening to the quality of sound. Melia Watras, Q4's violist, described how she did this:

> I must say, I—it's now just that I don't have to worry about it not being together, I can, go, 'Oh, wow, I can hear a heavenly sound, very, very far away.' And that sort of affects the color [of the music I play]. You know, the entire [group], all groups have a lot of long sections of long held notes that blend in and out. [With the click-track], we can relax, and hear the sound delayed, and blend with that.

Able to listen out for the qualities of sound rather than for accuracy of cues, participants could focus on developing the color of the music they played in relation to what they heard their colleagues doing, and blend their voices with the voices of others, deepening the relatedness between members, even at a distance.

While it seems that participants in the US allowed the click-track to replace other methods they had for coordinating their work[69], participants in the UK tried a different approach to engage the click-track in a way that increased relatedness: they combined their use of the click-track with their practice of feeling the pulse to develop ensemble. In natural conditions, participants prefer to perform coordination by developing a shared sense of the pulse—a key method of ensembling. As I discussed in Chapter 5, this route to coordination builds competencies and qualities of interaction particular to the group. Being dependent on a highly attuned form of communication, it also increases relatedness. While the click-track threatens to diminish energy by being oppressive, this route to coordination generates energy—"the feeling that one is eager to act and capable of acting" (Quinn and Dutton 2005: 36)—in conversation between group members. According to Quinn and Dutton (2005), processes of coordination that generate energy are those in which members experience autonomy, competence and relatedness in their work.

While Ivo's reconception of the click-track suggests it serve as an artificial replacement for an otherwise collectively generated and energizing pulse, his colleagues found ways of bringing collective engagement back in. The following excerpt from a rehearsal in the UK describes some of the subtle ways in which they continued to develop a shared felt pulse while working with the click-track:

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[69] This seems true from the data just explored in this chapter; however we also know that the "struggle phase" the US group engaged in before implementing the click-track continued to inform their work together with the click-track; some remnants of more organic efforts to share the pulse remained active.

The UK quartets rehearse in Paul's barn, July 3. Sophie Langdon, one of Britain's leading violinists, joins today to rehearse as an understudy, in the event that Paul isn't well enough to play any of the upcoming concerts. In which case, Cathy will play first violin, and Sophie second violin.

The quartets rehearse with the click-track, seated in a circle in close proximity. With Cathy's help as an external observer, they work on a section of the music in which Paul and Simon, as leaders of Q1 and Q4 respectively, have to be together in time. Paul shifts his chair in order to better see and communicate visually with Simon. Cathy locates their problem at the beginning of the section and sings the way it should sound. Sophie points out that the discrepancies are more in the second and fourth beats where Q1 is "legato", or "smooth", and Q4 is "lifted", or "punched". Paul asks if she thinks that Q1 should yield to Q4. Sophie responds: "I just think it's care over the common pulse."

They play again. It's getting better. Cathy tells Simon that, according to what she sees, he's not breathing with Paul, so when he starts there's no sense of a beat going on in his quartet at all. She's worried he's rushing. She advises them to all "lift" together to start. They try again; it's "getting better." But Sophie raises a concern:

Sophie: Physically, in performance, are you going to be miles away from Simon?

Paul: Yeah, miles.

Sophie: So you're going to be somewhere completely different.

Simon: [*nods*] Yeah.

Paul: Yeah, but I feel that it would be lovely to get it modulated *as if* it was an ensemble. And then the ensemble is fragmented.

Sophie: Yeah, because it feels—because of being so many people involved, and this click-track business, it feels as if the people are inhibited about finding a common pulse—

Simon: Exactly.

Sophie: —as you would normally do in playing quartet [music].

Tony: In some places we're not going to be able to even see each other.

Sophie: No, I know. So it needs to be *felt*, even though its—

Paul: I agree.

Tony: No, it doesn't come like that. It's easier when it's less pronounced. You actually hear more, you really do.

While working with the click-track, this group was also exercising other ways of organizing to experience ensemble. They collectively engaged in taking "care" over the common pulse. One way they did this was to breathe together, so that their sense of the pulse (albeit artificial) was shared, and they were prepared to lift together before they played. In other words, they prepared to lead together rather than lead and follow (as described by Q2 in the previously discussed interview). Even though they anticipated being "miles" apart in the concert configuration at Winchester, they worked in close proximity in order to behave "as if" they were an ensemble, and to release them from inhibitions of finding that common pulse together. Tony's statement at the end seems to contradict these efforts, but his contradiction aims at over-articulating the pulse, suggesting that what is being worked on in an embodied way in close proximity will transform into a more subtle, aural experience when the group adapts to the performance space. He argues, essentially, that even this process of feeling the pulse together in relationship to the click-track will become subliminal to the primary activity of listening, as the group increases in competence.

Also, [we're learning how to use] the click more as a guide. How to get used to playing with the click there, but not making it as a God, I mean, so you can play around. The click will obviously be in the same place, but you can interpret it within that rhythm, that straight rhythm, that's going on.

- Tony Lewis, cellist, Medici String Quartet

Over time, the musicians transformed the way in which they responded to the click-track, from it being thought of as a dominant logic—"as a God"—to it becoming subliminal to the work, like a heartbeat, a natural pulse. Once subliminal to the process, participants began to play together more, and lead together more, indicating that they experienced increased autonomy across members. The click-track transformed from being a logistics manager, telling them *where* to play, to subliminal enabler of conversation, releasing them to

determine *how*. Participants became able again to experience relatedness and demonstrate their competence as string quartet musicians.

Collective Leadership: Leading in ways that increase autonomy, competence, and relatedness

> *Part of the act of leadership, when you're explicitly leading others, is that you make a selective choice that this is the Truth I favor. Whereas the role within an ensemble…is that actually in the act of leadership you give permission to everybody to hold their own truth and combine it in a commonality.*
>
> - Paul Robertson[70]

Leading collectively is considered a key method of ensembling, and one way in which string quartets preserve dialogic relationality between members, preventing one logic from dominating and ensuring one another's autonomy. Participants interpret experiences of "all leading and not leading" as indications that the work has a quality of ensemble. Paul stated that *Towards Silence*, like other work composed for string quartets, demands leadership from different people at different times; it simply wouldn't work to have one person lead. Cathy explained that it was impossible, in the Spiral staircase configuration, for any one person *to* lead, given that they were not visible to the full group; collective leadership was necessitated by the performance constraints as well as the composition. Several participants argued the necessity of leading together simultaneously, in stretched conditions, rather than leading and following, actions that include a delay between initiation and response. Leading together exercised members' capabilities for breathing together and thinking towards the same point.

Collective, or "shared" leadership is defined in organization studies as "an emergent team property that results from the distribution of leadership influence across multiple team members" (Carson et al. 2007: 1218). It is a continuous and dynamic process by which members of groups influence one another, increasing the density of their relational

[70] Speaking to an executive group in Copenhagen, Denmark, December 2005. Quote taken from video transcript.

ties to one another in the process (Ibid: 1219). When groups share leadership, more people "engage proactively and collaboratively to create change" that is aligned with organizational goals (Ancona and Backman 2010). Shared leadership is well suited to conditions of complexity or ambiguity in the work task, uncertainty in the work environment requiring adaptive response, and to groups whose members desire autonomy (Carson et al. 2007, Ancona and Backman 2012, Ancona and Bresman 2007). The practice of collective leadership enables group members to sustain their autonomy, demonstrate competence, and increase relatedness with one another.

When I spoke with the three members of the newly formed Court Lane Ensemble (Q4) following UK pre-rehearsals in February, they reflected together on the difference between work as a group of 4 compared to 16 members, starting with an image of chaos. They questioned Paul's apparent resistance to conducting, to manage this chaos, then used that information to reconceive their own idea of what kind of leadership they might best perform in this new context:

Simon: Knowing what's going on. Yeah, just volume [of interaction]. There's so many things flying about, it's impossible to be so—to move so efficiently, because there are more people and more things involved.

Jonathan: I suppose that leads on to [the point that] if there was just one person, i.e. a conductor—which is why orchestras have conductors sitting in the middle—then [we could work more efficiently]. You know, if an orchestra didn't have a conductor, it wouldn't be efficient.

Simon: And that's—Why is Paul [Robertson] deliberately avoiding that? He wants that—. I think the piece in a sense demands that kind of—. [He trills his fingers, searching for the right word.]

Drew: [Softly fills in a word] Equalness.

Simon: [Sighs] It's not so much an "equalness." It's kind of, a sort of, an *anarchy*.

Jonathan: Well, each quartet has its moment to lead—

Drew: Yeah.

Jonathan: --so there's no one—

Drew: --domination.

Jonathan: --because of the way [the score]'s written.

Simon: That's it. If you're aware of the leadership at any point in time—

Drew: --you can go with that [leadership], yeah.

Simon: --then the whole thing has a structure that kind of—

Jonathan: Um, but—

Simon: --works.

Jonathan: --yes. (Pause) Yeah.

Simon: And if you're not [aware], it doesn't.

We can read the conversation between these three musicians as a demonstration of collaboration-as-conversation in action: Members of the group bring conflicting ideas into the mix—domination, equalness, efficiency and anarchy—and reconceive their way to a new idea of leadership using the material one another offers. They arrive at an agreement that the score demands movement between moments of leadership, and that the structure of the piece "works" when the musicians become aware of leadership action as it moves through the group. From leadership emerges structure, where there were once just "things flying about," and the musicians can at any point "go with" the leadership, suggesting that structure affords freedom. Rather than experiencing "domination," the musicians experience leadership that provides structure, requires vigilant awareness and supports improvisational play. Even Jonathan, who regularly expressed to me his preference that the work of larger groups be organized by a dominant leader in order to achieve the efficiency and high standards of excellence to which he aspired (his prior experience of ensemble happened in this context; see **Figure 6.6**), was persuaded by his colleagues to agree that a different kind of leadership better served this piece.

If we look at the way in which Paul performed the role of conductor early in the process—which Q4 began by critiquing—we can glean an example of leadership that aims to increase participant's autonomy and ability to demonstrate competence, rather than

decrease autonomy and competence through control. As previously quoted, Ciaran described how conductors usually organize the work of musicians, contrasting it with the click-track: "A conductor doesn't go like that: [*He makes sharp, rigid gestures with his right hand*]. He'll usually do something to show you *how* to play as well as *where*." In showing "how", conductors exert influence over a musician's performance. While early in rehearsals Paul agreed to conduct informally, he limited his contribution as conductor to "where" information. He helped the musicians know where to play, in time, so that they could learn to play together. At the same time, he left the "how" open to uncertainty, allowing for exploration of how to take place in rehearsals. He suggested they make notations in their score on when they, or others, would be providing leads that would help to organize the group. He created the opportunity for them to build the architecture of the piece, but refrained from providing too much direction otherwise. In this way, he also framed the role of the conductor as more of a metronome, to be used for as long as needed until the musicians were ready to release their ears to other possibilities. His action frames the use of "where" tools not as devices geared towards controlling the process, but as (preferably temporary) tools that will ultimately increase the musicians' capability, if they work with it in anticipation of becoming free of it.

Reconceiving leadership in response to the click-track

While I've already demonstrated one way in which participants became "free" of the click-track by engaging it as a subliminal enabler of conversationality, it presented a special challenge for the practice of collective leadership that Paul and others had fostered before its implementation. In contrast to Paul's temporary strategy of conducting, the click-track was established as a fixed external arbiter of the process: not something the musicians would become literally free of. Collective leadership practices were disrupted by its implementation, yet collective leadership was considered critical to the musicians' ability to meet their needs for autonomy, competence and relatedness. This disruption required a reconception of how to perform, and share, leadership.

The click-track impacted first violins differently from other participants. Given that the click-track was distributed to one member of each quartet, typically the first violin, that member was suddenly charged with the artificial task of enacting leadership in relation to

that external arbiter, embodying a mechanized pulse in order to communicate "where" cues to colleagues. Colleagues were charged to follow. As Q3 second violinist Ciaran said, "I have to sit back and let Anna kind of take control of it." When members of her quartet got off beat, Anna, as first violin, had to bring them right with the click again; there was no way for them to do it alone. Anna had to continually relate what her quartet was doing to the work of the larger group, in relation to the click-track. Sometimes this meant she would have to "drop out" with the click-track and go with colleagues when they fell out of time, and find a way to bring them back in time. Again, these actions were focused on realizing a foundational level of technical competence—getting the music played "correct" in time. The negotiation for Anna was between being correct in time "according to the literally elapsed number of beats" measured by the click-track (Weeks 1996: 219), and being correct in time with her colleagues.

While everyone's autonomy was constrained by this arrangement, perhaps no one was as constrained by this task than the first violin. Other members reported being able to release their ears to listen more to other quartets, while their leader's capacity for creative action was more significantly diminished. As Harpham's viola Ann Beilby explained, it became difficult for Anna to hear as well as her colleagues could hear, given the click in here ear. As a result, "she's unaware of a lot of the qualities that are happening around her. Which is a real shame, because she's like, you know, she's the main anchor, really. Everything comes back to the first violin, really, in terms of direction." Hearing the qualities, Ann explained, "helps you contribute more to it. If you hear something special it might make you, you know, aim for that sound as well. There's so many senses involved in something like that…I don't envy Anna for having that in her ear the whole time." Hearing, and responding to, the qualities was one way participants without the click could increase their autonomy.

There was also another way: As the first violins learned to mediate between the click-track and their colleagues, their colleagues started to participate in how they did so. Rather than simply follow cues or leads from the first violin, some musicians began to mirror that member and reflect back a modified lead, in such a way that they invited transformation of leadership. They could not influence "where"—the click-track was a fixed pulse, and one that they could only access through their leader. But they could influence

"how" the click was embodied and communicated. Here is an example of this, based on my observation of a June rehearsal in the UK, with members of Q4:

> Drew sighs and drops his viola to his knee. He looks at Simon with impatience tempered by the hint of a smile. "I don't know when to start [playing]. You're giving me *everything*. I need you just to give me the down beat." Simon, wide-eyed and willing, if frustrated by this new task, pulls out the wireless earpiece and asks for more explanation. Drew counts time to the other quartets, who continue to play, and demonstrates a pulsating gesture he motivates from deep within his torso, that indicates a sharp downbeat. Simon tries to imitate this, his violin in position, but his body moves differently. He motivates the gesture from his shoulders, resulting in a tense lurch rather than a fluid pulse. The outcome provides only muddied indication of the down beat. Drew continues his pulsation sharply, in time with the other quartets, coaching Simon on his imitation. Simon does his best to mirror Drew's movement and replaces his earpiece. Drew and Simon keep the pulse going physically together, as Simon syncs their pulse up with the pre-recorded cue. Drew picks up his viola again and plays…

As a result of Drew's initiative, Simon's style of leading transformed into a style the two had created together. Simon was now attuned to Drew's feedback, as Drew was to Simon's leads, and leadership could be performed, to some degree, together, within this relationship. By influencing how he was led, Drew, and others like him, assumed more autonomy and increased relatedness.

Ivo explained the importance of joining in leadership, even if at a reduced degree of influence, in order to resist becoming too passive in the work and to sustain energy for the task. He led with Cathy, as she led from the click-track:

> Q: Do you find yourself taking less leadership within [the quartet], because—
>
> Ivo: Yeah [*He nods].*
>
> Q: I mean, does it become really Cathy is leading and there's less opportunity for other people to, or—?
>
> Ivo: Yeah, I mean, because Cathy has got the beat and obviously we have to follow her. [But] it's in my nature anyways to always sort of like lead [*he mimes scrolling*

with his viola]…I've just always done it. Somebody in the quartet has to count! [*He laughs at his joke.*] No, it's just something, I don't know why I do it, but always, whenever I play, I'm always conscious of rhythm. I think because within the quartet over the years, that would probably be one of my stronger points, and not the others, necessarily.

Q: So you're using your viola to—

Ivo: Yeah.

Q: --I think I learned a new term: "scroll"—are you scrolling?

Ivo: Yeah, [*he laughs a bit*]. Well, "scroll" [*he makes a face*]. Well, I don't know. I suppose it's showing. It's just indicating, you know. So, not being too passive. You could just play [*He mimes a simple clean gesture of the bow across the strings, arms unwavering, not breathing, eyes staring in a fixed position*] and do that. Or you could just actually just move [*he does the gesture again, breathing, with a subtle rhythm; his elbows soften*] and pulse sort of. And I think I've become good at doing that, partly through the quartet.

But the thing is obviously we follow Cathy, and at one point I'm sort of leading a lot with her. But actually, I don't need to. So I'm probably more passive. I'm not sure that's better or worse, actually. Because the thing is, if you become too passive and static, that actually makes it harder. As I think they were saying earlier, you know, just the physicality [*he lifts his arms into position, elbows high*] of what you're doing, because it's *so* passive [*he gestures playing the long slow notes at the end of the piece*], if you're just sitting there like this [*he continues the gesture, not breathing, eyes fixed in a stare*] it will be terribly hard work. If you actually move, you're breathing [*he breaths and frees up his arms, looking relieved*], and you're moving your back and your moving your arms and muscles. But if you just sit [*he returns to the stiff stance, moving the bow in one direction*] literally just doing that, then everything becomes [tense]. And that last section is *very* long to be holding a viola under your chin.

Ivo argued for leading together with the Cathy as a way to continue breathing and to stay engaged in the work. The work became harder, physically, when he became too passive. He

also revealed his desire to exercise his natural competence for sustaining the rhythm, a role he saw as important, perhaps critical, for him to play in relation to his colleagues. By leading with Cathy, even though he couldn't affect the pulse, Ivo found ways to demonstrate his special competence and his relatedness to colleagues as a keeper of rhythm.

Ivo may have had more leadership influence then he claimed. Tony observed that collective leadership amongst the UK quartets was emerging spontaneously over the course of the project:

> [The first violins are] physically leading beats, and making sure everyone's together in their own quartet. And you can see also there's leads going on within each quartet. So [the quartets] actually are playing within themselves as well. So it's not just a click-track, but they are actually playing together and trying to lead each other, which is good.

While the musicians initially felt constrained by the click-track, over time, they grew more and more familiar with the click-track, internalizing it as a subliminal pulse, and required less frequent external cues. They appeared both to me and to one another to be taking more responsibility and leading more, suggesting that a dialogic relationality was emerging as members found ways to engage in leading with their first violins. Reconceiving the click-track as the inner pulse that supported the musical aesthetic, and responding to it as a subliminal enabler of conversation and increased relatedness, opened up opportunities for participants to perform leadership in ways that likewise helped them to increase autonomy, competence and relatedness.

Opening to uncertainty and reconceiving as acts of entrepreneurial leadership

I have discussed how opening the process to uncertainty and reconceiving are examples of energizing acts that call new possibilities into being while increasing member autonomy, competence and relatedness. I now extend that argument to suggest that, as such, they are also examples of entrepreneurial leadership (Hjorth 2005). Our discussion in Chapter 6 suggested that new opportunities were generated by exploratory iterations, but emphasized the role of evaluating efforts and recognizing possibilities in what had just occurred. Our current discussion emphasizes generation, or opportunity-creation that is in

line with entrepreneurial acts of social creativity (Hjorth 2003, Gartner et al 2003). In keeping with the relatively equal status members enjoy within string quartets, and with the argument that collective leadership increases dialogic relationality, any member at any time might engage in an act of entrepreneurial leadership, in ways to increase the collective's capacity to demonstrate competence and experience ensemble. Entrepreneurial leadership, then, receives treatment as a collective, collaborative phenomenon, when considered in the context of processes of ensembling.

CONCLUSION

In this chapter, I constructed a disruptive interpretation as a counterpoint to prior analysis, in order to increase our understanding of how ensemble is made possible and continue to explore this phenomenon from multiple perspectives. Previously, I paid attention to the ways in which participants discovered opportunities for ensembling through iterative work efforts. In this analysis I sought to understand how participants generated potentialities for performing future work in ways that challenged current understanding and enabled new practices or responses to constraints to emerge.

By engaging theoretical concepts of ensembling, including openness to uncertainty and reconceiving, I offer support for their relevance and examples that demonstrate how these methods are used to generate new opportunities and trajectories for group work processes as a whole. I've also used data to demonstrate an important way in which creative groups engage with constraints to increase rather than decrease their capacities: by reconceiving constraints as intrinsic to the developing work. Participants find this process energizing, when they are able to respond to constraints in ways that increase their ability to exercise autonomy, competence and relatedness. More specifically, I described processes by which participants transformed a coordinating technology from a logistics manager into a subliminal enabler of conversationality, and recaptured their ability to perform collective leadership despite imbalance caused by this external arbiter. The ways in which architect Frank O. Gehry and his community of collaborators used 3D technology to open space for dialogue and play in their innovation processes (Yoo et al 2006, Boland et al 2007) provides a parallel way of considering these observations: Participants were able to use the simple coordinating technology in ways that did not decrease the craftsmanship in their work, but

added new routines to their practice, expanded the horizon of possibilities, increased their capabilities, and enabled "more daring" forms for ensembling to emerge (Boland et al 2007: 639).

With this interpretation, I've both critiqued and added to findings generated by prior analysis in Chapter 6. In contrast to my prior argument that a shared purpose to ensemble seems to inspire ensembling behaviors and increases the likelihood that ensemble will emerge, I suggested that the emergence of qualities of ensemble also operate to influence participant behaviors and their evolving beliefs, increasing the likelihood that ensemble will be pursued. I also present a counter-movement to the iterative process of trystorming, which aims to resolve on an appropriate response to increasing constraints: I described ways in which participants deliberately opened the process to uncertainty and resisted closure before they had gained sufficient understanding of the work task and conditions. While these movements may appear to contradict, I believe they fruitfully co-exist. The musicians worked pragmatically to address the difficulties of increased constraint while simultaneously seeking to preserve their autonomy and explore alternative routes to demonstrating artistic competence and increasing their relatedness. They both ordered their work as a series of iterative explorations to address difficulties, making choices and actions in line with anticipated outcomes, *and* cultivated spaces of uncertainty to preserve their autonomy and the potential that unforeseen ways might yet open.

Chapter 8. MAKING AND BREAKING ENSEMBLE

During the break between afternoon rehearsals at Winchester Cathedral and that evening's official UK premiere of Towards Silence*, I interview three members of the Court Lane Collective (Q4): Jonathan (cello), Ed (second violin), and Drew (viola). I ask them whether they have experienced ensemble at any stage in this project's process. Jonathan starts the conversation by referring to their work together on the concert's first act: Vivaldi's* Four Seasons*. In their ensuing discussion, they generate possible diagnoses for why they believe ensemble has failed to emerge:*

Jonathan: We haven't gotten to ensemble [in the Vivaldi]. It's not ensemble.

Ed: I mean even in the Tavener, it's—[*He gestures "shaky" with his hand*.]

Jonathan: It's…people in pairs, by themselves, playing together—

Ed: Yeah.

Jonathan: No one is really contributing to a greater good…

Ed: [*overlapping Jonathan*] It's not integrated…it's just a bunch of—

Jonathan: Ultimately a good ensemble is a different body. You have four people playing together, for the fifth body of the quartet [*Drew says "fifth" with him*]. So, it's for the greater good. And that hasn't happened here.

Ed: Yeah.

Jonathan: I think the egos get in the way—

Drew: Yeah.

Jonathan: --Either they aren't giving enough, or giving too much.

Q: Hm. So what, with the Vivaldi, would need to happen for that to reach ensemble?

Jonathan: It would need better leadership.

Drew: Uh [*He takes a tone of disagreement*]—

Jonathan: [*To Drew*] Yeah, it needs [better leadership].

Drew: No, no, no, no, no. I don't think "better", I just think *different* leadership. A type of leadership that would enable people to be—allow free communication within the group.

Jonathan: Well, I was explaining to [Shannon] the other day—[*He holds his hands about two feet apart, in the leadership spectrum we had discussed, to show Drew*]: This is dictatorial [*He indicates his left hand*]—

Drew: Yes.

Jonathan: --and this is totally democratic [*He indicates his right hand*]. At the moment, we're kind of in a mess of discussion about here [*He gestures towards the democratic end of the spectrum*]. It really needs to be about there [*He gestures towards the dictatorial end of the spectrum*], where there is a clear leader; you have a leader that is good enough, and clear enough, that enables [democratic discussion; *He gestures towards the democratic side*, *suggesting movement*], when it's really required that we have discussion.

Drew: Definitely.

Jonathan: Because at the moment there's a lot of discussion that occurs which is totally unnecessary and a total waste of time.

Ed: Yeah.

Jonathan: People say the same points, people say contradicting points. They just need to be clear: "Alright, I want *your* advice now" [*He indicates a specific person*]. "I need to know; let's talk about this; what does everyone think?" Then the rest of the time people need to know that, actually, it's here [on the dictatorial end of the spectrum, not democratic]. Then the leader can move in [towards the democratic side]. But there should not be just random, I always say, "back seat driving", the whole constant time!

Ed: Yeah, we have these sort of discussions, and we never seem to come to a conclusion. It's just people saying their opinion. And no one's really paying attention—

Jonathan: [*He adds*] "Let's maybe do this."

Ed: Yeah. There's a lack of, sort of, decisiveness. Yeah, which is probably why we haven't quite meshed as well.

Drew: [*Pursues Ed on this point*] Would you therefore say that the thing this group needs is more *time*? Or do you think it does need a different type of leadership as well?

E: No, because I think we've had—I mean, we've had two *full days* of rehearsal, plus, you know, extra time stuff, which should be plenty of time. Because, I mean, it's not—I mean, none of it is particularly hard music. I just think it's the way that we've been rehearsing. I mean, other people have been saying maybe it's sort of too much time, almost. When you have a short amount of time, you know, if you've got to get this done [*He marks out a 15-inch distance of space*], you just get on with it. Because we've been—I mean, in the rehearsals, Paul's laid back and relaxed anyway.

Drew: Yeah.

Ed: I mean, it's nice, but perhaps it's the wrong mindset. It's also possible to get relaxed rehearsals, but also get lots of work done.

In this final chapter of analysis, I look into case phenomena to consider what appears to "make" ensemble possible and what seems to "break" ensemble, given stretched conditions. As informants discuss above, breakage may be attributable to features of the process that suggest themselves as conditions, such as limited time and a lack of clear external leadership, and features that suggest themselves as behaviors, such as not paying attention to others or lack of decisiveness, and the failure to practice ensembling methods such as relinquishing sovereignty for the greater good. I examine data for evidence of breakage, as well as success. My investigation of ensembling in natural conditions (in Chapter 5) proposed conditions and methods that *inhibit* the process. I chose to study ensemble in *stretched* conditions in order to learn something about the limits of ensemble, specifically the limits of the conditions and methods that seem critical to its emergence, insofar as we yet know. Breakdowns teach us something about these limits. Successes support or extend our understanding of ensemble, in some cases proposing new additions to my evolving framework.

As a strategy to generate data on the conditions and methods that make and break ensemble (or the likelihood this special quality will emerge in a group process), I build arguments based on comparing subunits embedded in the primary case study (Yin 2003, 1984), across three discussions of case phenomena. In the first discussion, I consider each participant as a unit of study, and compare differing perceptions of ensemble as four voices or entities, one blended voice or force of expression, or both, in order to generate understanding of the paradox of ensemble as four-AND-one. In the second discussion, I compare the US and UK phases of the project in order to understand why the first suffered less breakage (and a higher degree of perceived success) than the second. In the third discussion, I compare two UK performance events, the Synagogue and the Cathedral, in order to better understand why one concert was generally perceived a failure to ensemble while the other a success of ensemble.

As I carry out each discussion, I summarize findings on what "makes" and "breaks" ensemble, often distinguishing between methods and conditions. Although it's problematic to tease apart conditions from methods within a complex phenomenon such as ensembling, I suggest this exercise in distinction because I perceive it offers the most payoff in terms of generating insights consistent with my methodological approach so far. This framing constitutes a research choice, and, as all research choices, has its limitations. I use it here to explore how it increases understanding of ensembling, while remaining open to other ways of ordering and disrupting data to increase complexity at later stages of study. For now, I take advantage of these categories, which I believe suggest themselves in the data, to enhance the contribution I can make in terms of the methods and conditions relevant (if not critical) to processes of ensembling. In Chapter 9, I will synthesize these findings with understanding generated in Chapters 6 and 7, to summarize new learning that supports, extends, or challenges the framework of ensembling I have proposed.

LIVING WITH THE PARADOX OF ENSEMBLE AS FOUR-AND-ONE: Comparing member perceptions

For the first discussion, I begin with an example of paradox that seemed at first to threaten ensemble in stretched conditions, but that ultimately enabled its emergence: the paradox of

ensemble as four and one. As I interviewed participants in both the US and UK, I asked them whether they were experiencing ensemble in the process of working on *Towards Silence*. My question was initially met with uncertainty, sometimes skepticism, as to whether the full group would—or was meant to—ensemble. Paul's interpretation of the task given them by Tavener was to "perform as an integrated ensemble while seated apart." However, Ciaran, for instance, told me that he believed they were meant to be four quartets, not one ensemble, because the piece was "written that way." This worried me at first, given that I was hoping to study ensemble in stretched conditions; would they even aspire to ensemble as one large group, if they didn't believe it to be their task? As I continued to explore different perspectives members shared, and follow up with some of them over time, responses—even some offered by the same individual—conflicted. Some participants reported an experience of four ensembles, some an experience of one. Some said both were necessary. A paradox emerged—one critical to ensembling.

In the US, Medici members Ivo and Tony expressed uncertainty as to whether the sound they produced should be (or could be, given constraints) the "homogenous" sound of one ensemble, or the sound of four separate voices in dialogue:

> Q: Do you think [the work has] got a quality of ensemble? Would you think of it as one ensemble, right now, or do you think of it as four?
>
> Tony: No, I think it's four ensembles. But there is a total sound [*He holds his hands up as if holding a sphere in front of his face*], a homogenous sound. But, it's not really a whole ensemble, is it? [*He asks Ivo.*]
>
> Ivo: Not really. I suppose ultimately, that's—well, I'm actually not quite sure. Because in a sense the whole point is that the sounds are all so separate. Which within *a* quartet, *an* ensemble, the whole point is that it is very closed and homogenous. Um, and we're not going to get that with the [spatial] spread of sound, so, I don't know. Interesting question.

In this response, Ivo weighs both the composer's intention—whether the score was written to be separate or homogenous sounds—and the qualities possible to achieve given stretched conditions; he thinks the spread of spatial distance between quartets in the US configuration is incompatible with producing an homogenous sound. When I asked Ivo this

question again in the UK, he had a different experience based on rehearsing at Winchester Cathedral:

> Q: Do you agree with the idea that it's more like four ensembles working together, or do you have a sense of a larger group coming together?
>
> Ivo: I think today [at Winchester] for the first time, because of the, just the acoustic of the place, I was more aware of the whole… In here we have such a large space, and because we're more isolated from each other—it's the isolation you actually need to kind of hear what's going on. You know, if we were [seated] all together as a group, we wouldn't hear so much.
>
> …It could be because everything becomes more equal [*He gestures a sphere in front of him*]. But you have an overall impression of the sound [*He gestures to expand the circle around him*]—I can't quite describe it. It seems a paradox, but actually it's true. Which actually, that's what you need. You want to hear everything. That's what the music is.
>
> Q: So hearing it, in a way, also has to do with being able to identify different groups as separate from one another?
>
> Ivo: Yeah, yeah, yeah. So in that sense, I mean, I don't know if—I haven't thought about this—if the purpose of the piece is to be as one big unit, or to be four separate units. I suppose it's four separate units, because we do, you know, the same things, but at different times, so it's got to be separate, I suppose, but—

In these two interviews, Ivo alternated between seemingly conflicting impressions of the sound: He wanted to hear what was going on in each group or unit, and he wanted to hear a whole sound. He equated an "awareness of the whole" at Winchester, with an experience of ensemble as a larger group. The Winchester configuration, giving them a degree of isolation from one another in horizontal space, with 15 to 26 feet of distance separating quartets, ironically allowed both participants and the audience to hear a more whole, complete sound, as if produced by *an* ensemble. Ivo uses the same gesture Tony did, of a sphere in front of his body, to express this idea of an homogenous sound. At the same time, Ivo also pointed out that the audience needed to be able to differentiate between quartets in order to perceive the musical patterns moving from group to group at different times, repeating

with variation. That movement was easier to achieve in the US—perhaps inevitable—given that the quartets and audience members were spread vertically across four levels of the Spiral staircase, with 16 to 36 feet of distance between quartets, whereas the "whole" experience of sound was more difficult to realize in that configuration (see **Images 8.1** and **8.3**, with **Figures 8.2** and **8.4** to compare configurations).

Image 8.1. The Spiral Staircase, Rubin Museum of Art (US)[71]

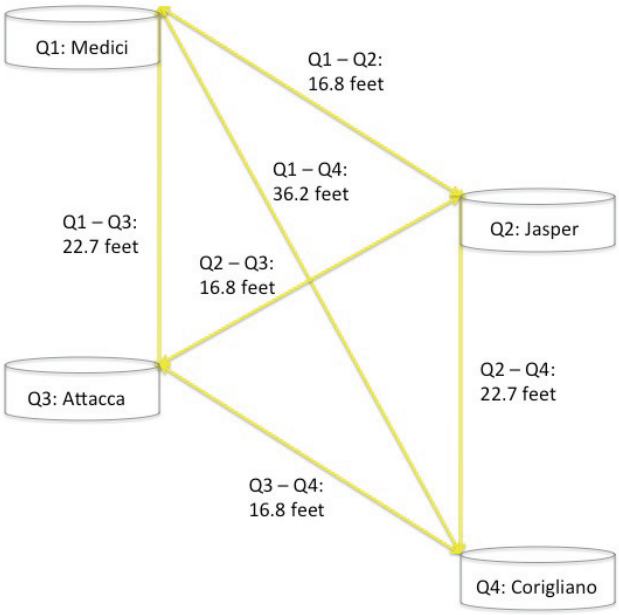

Figure 8.2 Measurements between quartets in the Spiral staircase (US): Distances ranged from 16.8 feet to 36.2 feet

[71] Photo by Peter Aaron/Esto

Image 8.3 Winchester Cathedral (UK)

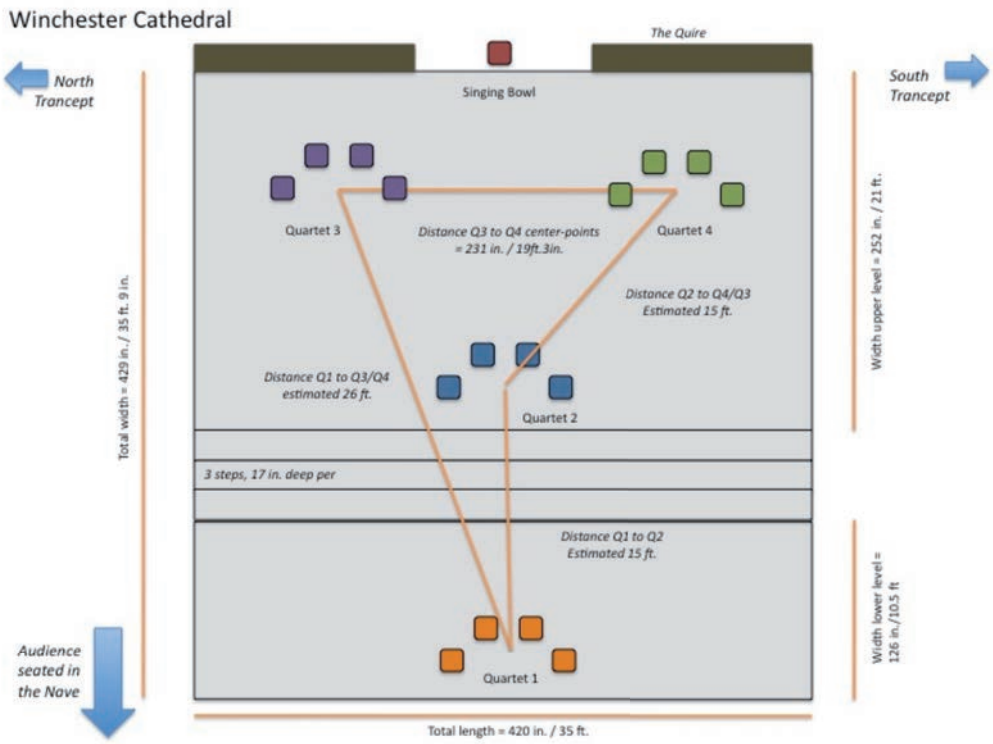

Figure 8.4 Measurements between quartets at Winchester (UK): Distances ranged from 15 feet to 26 feet

In the US configuration, aspirations were directed to achieving "layers" of sound to express the balance of relationship between the four quartets. Keiko, second violinist of Q3 in the US, interpreted Tavener's score as structured so that separate waves of sound were passed from quartet to quartet. But in order to achieve that effect, she thought they needed to be in touch both with their own groups and with everyone else:

> Because of the way [Tavener] writes certain parts, it's more of a wave [*She gestures as if sound is traveling around a group*]. This piece itself has a certain wave of notes and rhythm that is being passed around within the quartet, and then between four quartets [*She varies the gesture to be bouncing across a diagonal between groups*]… So it's more about, yeah, being in touch with everybody in the quartet, *and* everybody in this hall, pretty much…

Amy, first violin of Q3, built on her colleague's description, to describe the paradoxical nature of the task, as she was experiencing it:

> Yeah, I mean, we're always trying to be one entity, as a quartet. That's like one of the main challenges of being in a string quartet. But, in this situation, not only do we have to be one entity, but one entity with like three other entities. And on top of that, fifteen other. [*Her colleagues nod*.] So it's like trying to be one solid entity together, so that we can be in like a "quartet of quartets." It's kind of really interesting. And it's actually a huge challenge, with this space, not only because the visual aspect is kind of warped at times, but also because, um, it's really difficult to hear.

Amy argued for becoming both one entity as a quartet, and one entity within the "quartet of quartets," an aspiration frustrated, to some degree, by the difficulty they had hearing one another in the US. Fenella confirmed Amy's argument in her assessment:

> It's both. You're both trying to be, you're trying to play with, to kind of pair with [your] quartet [*She gestures one contained circle to the side*], or the whole [*She gestures larger sweeping circles*], you know. But at different moments, you're focusing on different things. And, you know, there's a limit to how much you can hear, as well.

Fenella described an alteration between ensembling within her quartet and ensembling with the larger group, explaining that it was difficult to do those two things simultaneously. While Amy said it was difficult to hear, Fenella implied that there was a limit to how much she could listen and attend to, regardless of what she could hear, that constrained her. Fenella's strategy for addressing the paradox was to allocating her attention alternately to her quartet and the whole.

Natalie, who performed *Towards Silence* in multiple venues and configurations in the UK, took great pleasure in learning how to exercise dual attention in stretched conditions, and described a more complex pattern of attention allocation that adapted to both the demands of the score and to varying work conditions:

> What I really liked about this piece in learning it (you [asked], am I getting better at anything): I think there's something that's very clear with this piece, and that's where your ears are….You're never really on your own, because we've always got things in duets…But it's whether your dueting with someone next to you, or as a whole quartet, or between four people in different [quartets], your ears are kind of everywhere. Or if your ears are listening to the whole, when the melody comes together, and we're all playing, and kind of changing at the same time, where we're all one body. So your ears are getting used to kind of filtering this way, that way, out there, everywhere, in different combinations. And I find that really interesting. And it's a very useful skill, as well…listening to everything, including yourself. Which is something that's really important when you're playing in a quartet, that your ears are kind of above the quartet [*She reaches above her head*], and you're not just focusing on your own part.
>
> …[And it changes] all the time. Not just in the spaces, it's within the piece. Because one minute Sara and I are doing something. The next minute we're doing something as a quartet. The next minute I'm doing something—the second violin in each quartet is doing something that's related to each other, so you're ears are in those places. And then, as a whole, everyone is doing something.

Natalie referred to this exercise as "dueting" in different relational configurations, and described a high degree of flexibility in moving between configurations, often attending simultaneously to multiple relationships. Furthermore, she went on to describe the ways in

which she adapts with whom she is dueting based on whom she can see in each configuration. She may spend one performance passing cues in direct visual communication with a colleague in another quartet, or she may have to attend more to counting beats in order to structure cues herself if certain colleagues aren't visible. In these ways, she continually adapted her patterns of allocating attention in response to the requirements in the score and the work conditions in each venue, developing what she considers to be "a very useful skill" of listening to everything.

Despite the challenge of ensembling as both four and one in stretched conditions, Ciaran, who altered his perspective on the issue at Winchester, offered an argument for why four *quartets* might be better positioned to realize ensemble as one larger group:

> When [ensemble is] working well it should sound as one. Even though there's individual voices within it…. And that's obviously a challenge in this project, because obviously we can all hopefully do that within our groups, but it's a challenge then to have that other level [as one large group]. Because there are points were we are, all sixteen of us, trying to make that sound. And then spatially, that's a challenge as well, because the further you are away, that's hard to kind of get one sound as well. So that's an extra challenge. I suppose that's why it's good that it's four *quartets* playing together, because then hopefully they'll be more inclined to play together as one, as well. [He shrugs.] Hopefully.

In his argument, Ciaran underscores the difference between ensembling as a group of 16 individuals and ensembling as four groups of four who "can do" ensemble within their groups. According to his expectations, ensemble is more likely to emerge because, as members of quartets, participants are more inclined to pursue it. Tony made a similar argument, suggesting a group of 16 individuals would not be able to achieve ensemble:

> I mean, in a funny sort of way, it wouldn't be as the same with 16 people…Actually, the fact that it is four separate quartets, four different quartets, is what makes it work. Because if you had 16 people who didn't, you know, had never played together before, it wouldn't work.

According to Ciaran and Tony, 16 individuals might break ensemble, but four *quartets* make ensemble possible in conditions of stretched membership. Several informants described the structure of the composition as "a quartet of quartets", or four voices, rather than 16,

coming into conversation, thus making this territory familiar to them: the organization of four voices.

Informant comments repeatedly highlighted the need to create both one whole sound and individual voices within that sound. The tension between those voices is actually inherent in the quality of ensemble, as informants have described it. In Chapter 5, I reported on features of ensemble including "synchronized individuality", by which the qualities of a "true dialogue" between equal members are made evident in the music. I also reported on the "fifth body" phenomenon, to which Jonathan and Drew refer in the opening of this chapter, where ensemble is experienced as being both one "unity of conception" and the blend of four voices, with the fifth voice of the quartet emerging as a whole. Ensembling depends on groups pursuing both at the same time: pursuing the multi-voicedness that energizes collaboration-as-conversation and the process of reconceiving, and pursuing the unified whole which emerges when members finally relinquish sovereignty over their own ideas, producing outcomes greater than the sum of their parts. Groups run into a problem if they are behaving either as if they are only one homogenous voice, or if they are four individuals. Either way, they are not doing the full work of ensembling.

It seems reasonable to expect that participants' conception of whether they were meant to become one or four ensembles, or both, mattered, as it would inform how they directed their efforts for ensembling: whether they focused their attention within their own quartet or worked towards ensembling across quartets. If their conception conflicted, surely their methods would as well. However, members never pursued or reached explicit agreement on this issue. Perhaps this was intentional. Ensembling thrives on multiple, divergent voices coming into conversation. As Murnighan and Conlon (1991) found in their study of string quartets, the more successful quartets live with, recognize and understand, but do not openly discuss or try to resolve, paradoxes in their work and relationships. The tension of paradox generates energy in conversation, as it keeps multiple perspectives and potentialities engaged (Austin and Hjorth 2012; Quinn and Dutton 1995). Had they sought to explicitly resolve this paradox, their actions would have been at odds with pursuing the special quality of ensemble that invites dialogue, and the processes of ensembling.

Whether or not individual participants continued to think differently about ensembling as one, four, or both, the group processes demonstrated a concern with ensembling both within quartets and across them. Work addressed multiple layers of

ensembling, at different times during the process. In February, Paul said: "The nature of the piece, the way it's composed, and the nature of the—I don't know if you can call it *an* ensemble or the combination of ensembles, is such that it would be grotesque if there was only one person leading." He hadn't decided yet whether it was best to ensemble as sub-groups or one larger group, but made it clear that the critical feature was that leadership was distributed amongst all members. As the UK quartets rehearsed in July, Cathy coached Simon to breathe with Paul, so that they two, as first violinists, were pulsing together. This group determined that the leaders of the quartets (those with the click-track) needed play as if *they* were an ensemble themselves: an ensemble of first violins. At the same time, in that same rehearsal, Paul rejected the idea of spreading the quartets out across levels to simulate performance conditions in favor of working as if they were one whole ensemble while seated in a circle together, as that approach affected the modulation of sound. He believed that exercising ensemble in close proximity would "pay a dividend" when the quartets spread out in concert halls. Then, when the UK group entered different performance configurations, they explicitly worked "ensemble"—the blend and balance of conversation between voices across quartets—in each space. The US group attended to ensemble by regularly gathering on the ground floor to "tune" themselves in proximity where they could best hear and respond to one another, across quartets. They tuned ensemble within their quartets during private rehearsals or when seated at distances from the others to rehearse.

Exploring this paradox teaches us several things about both the methods of ensembling and ensembling's relationship to conditions. It supports the quality of ensemble described in Chapter 5: ensemble is experienced as both one and four, or one and five (a fifth body). It extends this quality by suggesting a method for realizing it: to live with the paradox of both cultivating individual voices (as individuals or as separate quartet entities) and the dialogue between them, and working ensemble across members and groups to sound as one. A balance between these voices needs to be sustained—attending to one at the expense of the other will result in either a lack of unified expression or a lack of dynamic dialogue. In normal conditions, quartet musicians achieve this balance in part through the practice of "dual attention": they pay less attention to themselves so that they can pay increasing attention to their colleagues and the emerging whole. However, the practice of dual attention becomes more difficult in stretched conditions. As Fenella suggests, when group size increases, group member attention begins to max out. Her strategy was to

alternate her attention between her quartet and the larger group. Natalie alternated the patterns by which she attended to others by "dueting" with a partner, a sub-group, or all, flexibly, as suited the task requirements and performance conditions. These examples suggest a new way of sustaining a dynamic form of dual attention when interacting within a larger network of collaborators and in varying performance conditions.

To summarize, this analysis provides evidence for the following extensions to our understanding of what makes and breaks ensemble, in terms of methods and behaviors:

Make

Living with the paradox of one and four: the quality of interaction and relatedness between members includes (and should sustain a balance between) both true dialogue between individual voices, and the blend of four voices into a homogenous sound.

Dual (or multiple) attention—dynamically allocating attention to different relational configurations, whether in pairs, sub-groups or the full group—enables group members to ensemble as four voices and one sound.

Group processes need to cultivate ensemble as both one and four. Episodes of close proximity help to develop the group as if one ensemble.

Other configurations of "ensemble" as sub-groups possibly support ensembling: i.e., the leaders of each sub-group might also behave as their own ensemble.

Break

> Resolving the paradox of one and four—for instance, bu choosing to behave as only one body or only four bodies, or to emphasize one homogenous sound at the cost of developing four voices in dialogue—breaks ensemble.

In terms of *conditions* for ensembling, I suggest several extensions to prior understanding. First, we learn that participants believed that a membership size of 16 would break ensemble; at the very least, it alters the nature of the contribution each individual can make, being now, as Keiko stated, "just 1/16th of the entire universe" rather than 1/4th. However, organizing as a group of four sub-groups increases the likelihood of ensembling. Group type also mattered: Ciaran argued that quartets are inherently more inclined to ensemble than other musicians might be.

Second, though the larger group experienced limited tenure, their work processes benefited from a degree of enduring tenure within sub-groups. Tony attributed the group's ability to ensemble to it consisting of four quartets. This evidence suggests that a combination of enduring and limited tenure can support ensembling in larger group. Paul described the effect of Medici's enduring tenure on the group's ability to ensemble: Though they hadn't played together in 5 years when this project started, Medici's 37-year history of working together made it easy to ensemble. "As I expected and I knew," Paul said, blowing a puff of air, as if to imply it effortlessness, "I mean, we could step into an ensemble—we could do it in our sleep. It would be harder not to play together than it would be to play together…[T]here's just a pattern of adjustment and usage." When sub-groups can "step into" ensemble quickly, they can allocate more of their attention to ensembling across groups.

As a third extension to prior understanding of conditions for ensembling, I add "configuration type". Horizontal compared to vertical spatial distribution reportedly had an impact on the quality of ensemble that emerged and the way in which participants conceived of and developed their relatedness to one another. The vertical distribution of quartets in the US threatened to convince members that ensembling as a whole group was impossible; Ivo believed that the vertical spread made it difficult to realize a homogenous sound; Amy said it was difficult to even hear the others. However, some participants in the

US ultimately reported on experiences of ensemble and play, so ensemble did not appear to "break" in that configuration. Rather, they altered their approach to developing ensemble. Instead of trying to produce one integrated sound, they focused on developing their interaction as four voices in a layered dialogue. The quality of sound produced in a vertically distributed configuration (the Spiral staircase), in terms of the paradoxical balance between the dialogue of four voices and a unified sound, differed aesthetically from the quality of sound created at Winchester Cathedral, where participants experienced horizontal, but not vertical, distribution. In this configuration, they enjoyed more balanced (equidistant) access to every other group. They also had, according to Ivo, the right balance of spatial distance and proximity in order to both distinguish separate quartet voices with which to converse, and to realize a whole sound. Configuration informed the qualities of conversation in which groups engaged in two ways: it made some qualities more easy to pursue than others, and it altered the way in which participants conceived of—and therefore developed—their relatedness to one another, affecting the balance between becoming one and four.

Finally, the paradox of one and four assumes a highly interdependent work task. The degree of interdependence is such that groups experience a multiplicity in the ways in which they relate to one another; for instance, how Natalie alternately duets with Sara, with her own quartet, with all second violins, and with the full group. Sometimes interdependence is exercised as dialogue between members and groups, sometimes interdependence involves those voices merging into one unified expression. Ideally, that multiplicity of interdependence can be experienced in the special qualities of the outcome, in which a dynamic conversation takes place within the context of a homogenous sound.

Make

Ensembling as a larger group benefits from (if not depends on) sub-groups who are already inclined to ensemble and capable of ensembling.

Enduring tenure within sub-groups helps to support processes of ensembling as a larger group, with limited tenure.

The right balance between spatial proximity and distance between groups enables the groups to develop ensemble both as four voices in dialogue and as one homogenous voice.

Horizontal distribution that is equidistant or perceived as balanced, as compared to vertical distribution, better enables members to hear and develop a homogenous sound.

High degree of task interdependence experienced on multiple levels: as dialogic relationality and unified expression ("as if one AND four").

Break

The degree to which one individual or group can ensemble with others is dependent on the degree to which they can hear or otherwise interact with those others; if it's too hard to hear/interact, they can't pursue an homogenous outcome.

Large groups composed of individuals (as opposed to sub-groups) might break ensemble.

While it doesn't appear to "break" ensemble, vertical distribution, which is non-equidistant, makes it more difficult for participants to pursue a homogeneous sound. Instead, it encourages groups to cultivate a "layered" conversation as four separate voices.

CESAREAN VERSES NATURAL BIRTH: Comparing project phases

In this discussion, I consider the reflections of informants who experienced both the US and

UK phases of the project (Medici Quartet members Cathy, Tony and Ivo), specifically their comparisons between phases, in order to learn why the first was generally perceived to be more successful than the second. I consider their reflections along with my own comparisons of the work in those phases, based on observation. Again, I use comparison across these subunits of the case study to generate evidence of what makes and breaks ensemble.

> *Medici second violinist Cathy and I sit on a bench outside St. Mary Church in Petworth, during the break between rehearsals and the evening performance. I start by asking her what the difference has been between the work in the UK and in the US.*
>
> Cathy: [*She laughs, then sighs.*] Oh god. How long have you got?! [*She laughs again.*] Oh, crikey! …It's been very different, because New York was so focused. I mean, maybe because it was our first performance of it, and we were still deciding how we were going to do it…As I said earlier, it was like having the baby by Cesarean [in the UK]. In New York, it was like going through a labor to have your baby. Whereas, here, we just sort of went right in, and the baby came. So that's the difference. And I do think that the struggle and the strife in any group, it has some sort of reward. Even though, as you saw in New York, it got quite heated.
>
> [Also]…we had slightly more experienced quartets in New York. And that's not to put our lovely quartets here down at all. [The New York quartets] were just a bit older and a bit more experienced, and a lot more serious, funnily enough. I think there's something lovely about the English players here because they are, you know, they're eccentric, they're fun, they're crazy. You know, this is their country; we do things a bit differently.
>
> We went to New York and it was a different vibe...[I]t was easy to rehearse, because they were more receptive, just more receptive, and I don't know why. They just seemed to sort of do the job. Whereas this has been much more: "many cooks [in the kitchen]"…But interesting as well. But just everyone getting involved, everyone doing their own thing [*She gestures a bit wildly, flinging her hands and head about*]. Crazy, not together, too loud, no listening, joking, mucking around, falling off stages. It's been totally different…especially because it had been so focused in New York.

> People [in New York] were very, very, very, very keen to *listen* to you, and then also put their point across, which was valid. So it was a very different atmosphere.
>
> *But*, you know, we've all sort of jollied along [in the UK], and I think we've all got respect for one another now, and we're all working better. But it's taken time.
>
> … I think the Tavener has improved incredibly in a week. So much better. You know, still not as serene as probably New York was, because…[it was] just tighter. So, you know, there are lovely moments [in the UK]. They are very sensitive musicians here, and they are very interesting, and very sensitive, and maybe more [*she searches for the word*] characterful—maybe. But they lack the discipline [of the US quartets].
>
> *I ask Medici cellist Tony the same question later that day*:
>
> Tony: As far as the playing goes, I mean, it didn't start off as well [in the UK], because I didn't think [the UK quartets] were as prepared as the Americans were. And still…I don't *think*—they're not quite on the nose all the time…Still not quite the sort of…tightness that the Americans had.

When asked to compare their experiences in the US and UK, Cathy and Tony both differentiated between groups based on "tightness". Both claimed that the American quartets achieved a higher degree of tightness than the English quartets, and that this made for a more successful performance in terms of the quality of interaction. Given that both groups worked with the same click-track, the click-track could not have determined, in and of itself, the level of tightness achieved. As I spoke more with Cathy and Tony, they described tightness as being something more than playing precisely in time together; it involved breathing together, leading together, and achieving a higher quality of listening and relatedness, qualities by which informants recognize ensemble. They attributed the difference in degree of tightness to conditions and behaviors other than the click-track. These included group tenure, the degree to which they could hear one another given configuration and distance, the level of preparation invested by quartets in advance, the degree of focus they displayed in rehearsals, and the degree to which members were equally contributing ideas, debating with one another and leading. Two other factors came

up: Both Cathy and Tony agreed that the "struggle phase" in the US had a big impact, perhaps the primary impact, on enabling a higher degree of tightness. Project leadership, external to the activity of playing music, may also have played a role; several participants expressed opinions of their preferred approach to managing the process. This comparison of the US and UK project phases increases our understanding of what makes and breaks ensemble, as I discuss and summarize in the following discussion.

Conditions

Cathy and Tony pointed to two primary conditions that they believe influenced each group's differing ability to achieve tightness, or, in other words, to ensemble: group tenure (and the balance of tenure between groups), and the degree to which they could hear one another, given the constraints of configuration and spatial distance.

Group Tenure and Balance of tenure across groups

> *We went to New York and it was a different vibe, it just was. You had the Jasper Quartet from Julliard, who were the most focused quartet I've ever met. Then you had the beautiful Coriglianos…who were sort of getting back together in their 30s, and they were sort of semi-serious, but sort of just loved one another, and then very, [*she emphasizes 'very'*] very good players. Then you had the lovely young [Attacca] quartet who…[were] very, very good. We had another quartet that was a bit like us, with the Coriglianos, so I think that balanced us a bit. This is my feeling, you know. It just was a balance, because we had an older quartet who understood where we were coming from… and they were very easy to work with. And then you had the two young quartets who were sort of like [*She gestures with her hands in fists, as if wrestling the air, and clenches her bared teeth as if biting into something*]. So it was interesting, the balance...*
>
> - Cathy Thompson, Medici String Quartet

The US quartets enjoyed considerable advantage in terms of group tenure, which ranged from three to 13 years, compared to their UK counterparts. The Corigliano Quartet

had been working together, with one membership change, since 1996 (13 years). The Attacca Quartet had formed in 2003, with one membership change during their six-year tenure. The Jaspers organized in 2006 to pursue a professional career together, but, according to Cathy, had already achieved a high degree of focus in their first three years together; they were Quartet-in-Residence at Yale University. In the UK, several of the quartets were newly formed or forming: The Harpham Quartet was founded in 2007, but had just lost a member and were in the process of bringing in someone new; Paul described them as "tentative" in pre-rehearsals, whilst they were "not quite functioning as a group" being short a member. The Finzi Quartet was newly formed, and in the past year had already introduced a new second violin; their official debut as a quartet was in 2009.[72] Members of the Court Lane Collective had worked together before, in different combinations, but were only beginning to experiment with being a quartet. Paul described them as all talented, but not yet a quartet, having not yet "ordered themselves".

Cathy's experience of group tenure and balance informed the way in which she related differently to the two groups, particularly how she approached leadership. She and other members of the Medici Quartet took more of an active mentorship or coaching role with the quartets in the UK. I observed this with both *Towards Silence* rehearsals and rehearsals of Vivaldi's *Four Seasons*. Cathy was eager to get the UK musicians to lead more, and tried strategies for encouraging this behavior:

> I want them to [lead more], because I want them to get the hang of this, you know, thing, where they do it themselves. Because they don't do anything. When [I'm] playing the solo, they just play, quietly…What I would like them to have learned from this is that even if they are not playing the solo, they have to lead as if they were a soloist. And it's a collective group thing. Maybe today it happened a little bit when I stopped playing. I said, "I'm not doing it. You lead it." And then they all started doing it.

She was clearly concerned that the UK quartets learn in this context. In New York, however, Cathy insisted that a mentorship relationship between Medici and the other quartets would have been inappropriate. She explained:

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[72] Despite being young, this quartet was praised by Paul for being "well-organized" and "well-balanced" as a group, performing as a unit; see example in Chapter 5. However, as of the final drafting of this thesis in 2012, only one of these original members remained part of the quartet.

> Every quartet [in the US] was so talented, and had their own life, had it's own career... You know, it felt that you had to have every quartet's input; that they had to feel it wasn't about Medicis mentoring or teaching, really, other quartets, at all…It was nothing to do with that. It was about very successful young groups, young quartets, who where coming to this project, and they had as much right to sort of take the lead as we did.

Cathy experienced a better balance of relationship in the US, with the Coriglianos, who were "an older quartet", which translated to a feeling of mutual understanding. She described the younger quartets in the US (still three to six years into their career) as focused, "very, very good" and impassioned. The US quartet's coherence as ensembles, having their own "life" and "career", enabled a different set of relationships and dynamics to emerge between quartets, contributing to the development of more democratic or equal leadership, and possibly as well to the higher degree of focus and deeper listening she experienced. Hackman's study of live performing teams offers supporting evidence for Cathy's experience: he shows that stable groups perform better over time as members increase their familiarity with one another, develop a shared pool of knowledge and shared mental model that integrates the contributions of one another, and build shared commitment to and care for one another (2002: 55-56). These behaviors and capabilities are all relevant to process of ensembling. Lack of group tenure, on behalf of the UK quartets, (combined with other factors) may have, alternatively, inhibited ensembling.

<u>Make</u>

Enduring group tenure, as well as some degree of balance (or perceived balance) of tenure across groups.

<u>Break</u>

Limited group tenure, as well as imbalance of tenure across groups.

(And, as a behavior) Mentoring activity (that may result from tenure imbalance) that cultivates hierarchical relationships between groups.

Degree to which members can hear one another

One possible practical reason for why the US group achieved a higher degree of tightness was the degree to which they could hear one another given the qualities of the performance venue and configuration. Tony suggested that the space may have played a critical role in enabling tightness:

> Q: Do you think ultimately using the click would get you to a place where you could still do what you would normally do as a quartet, without the click-track playing?
>
> Tony: I think in New York we did. I don't feel we have here [in the UK] yet…It's probably for the same reason [we discussed before]. We actually worked it first [without the click-track, in New York]. Or, that the venue was more responsive to hearing each other, because it was a complete vertical [spread, in the Spiral], wasn't it?
>
> Q: Yeah. So you could hear better in New York?
>
> Tony: Yeah, but it was more, just by playing normally you can hear the other groups. I mean, here [at St. Mary's Church], if we're playing normally, I mean, I wouldn't have a clue what this lot are doing [*He gestures to Q2's platform across the church from Q1's platform*]. You hear little bits and pieces, but—I mean, in New York, you could *almost* play it without [the click].
>
> Q: Yeah?!
>
> Tony: *Almost.* It was there just as a safety net, really…Because we got to the stage where we'd done so much [work], and it was so together. Here, I don't think we'd get more than four or five bars. But then again, [the conditions are] different, you see.

While he suggested behaviors were also in play, differentiating the US experience from the UK experience, Tony admitted that it may have come down to the practical ability to hear one another based on conditions of spatial distance and distribution, and qualities of the space. Their configuration in the Spiral staircase enabled them to better hear one another because of the vertical distribution of sound. Whereas, in the configuration at St. Mary's Church in the UK, for instance, quartets were distributed horizontally across an architecturally imbalanced space, one quartet seated under a low ceiling, another behind a pillar, and Tony couldn't hear them.

Whether or not vertical or horizontal distribution is more conducive to hearing is debatable; Ivo reported the opposite in his assessment, claiming to hear a more complete sound at Winchester. Position in the configuration matters as well: Tony had an easier time hearing in the US being located on the top floor of the configuration, since sound tended to "waft up" the vertical funnel of the staircase, whereas Q4 on the bottom floor had great difficulty hearing. However, space certainly played a role in constraining the degree to which quartets could hear and respond to the sounds other groups were producing, and this contributed to member's perception of whether or not they experienced "tightness". Cathy contrasted "tightness" with feeling "disengaged" in her comparison of spaces:

> I think for me, Colet House didn't work…Personally I felt really disengaged from the sounds. We were in the corner. [*She cranes her neck.*] I couldn't really see the quartet right over there [across the ballroom]. Even though we're in higgledy-piggledy states wherever we go, that seemed to be much more spread out.[73] I was really only aware of me and Paul and Tony and Ivo playing. So for me it didn't have that lovely sense where I really felt there was that, sort of, lovely other thing [of relating to the other quartets] going on…I enjoyed the Synagogue, and I didn't expect to, because of the space. But in a funny way, maybe [performing in the staircase of the Synagogue] was reminiscent of New York, and the fact of having [the other quartets] all underneath, and this lovely sound sort of [*She gestures, smiling, sounds tumbling through the air*], you know, sort of rolling around. So, in some ways, maybe I sort of thought, "Oh, this is nice," because it felt more—we were getting a bit tighter with the Tavener.

[73] Colet House did, in fact, provide the furthest measured distance between quartets, compared to every other venue. 54 feet separated Q1 and Q4, who were seated about 6 feet apart at one end of the long ballroom, from Q2 and Q3 seated 6 feet apart at the other end.

Cathy and Tony found it much easier to respond to and relate to the other quartets, and achieve "tightness", when the configuration enabled them to better hear one another, even when what they heard was a general sense of sound "sort of rolling around".

Make

Being able to hear (or see) others outside their own group, to some degree, (whether based on proximity or other qualities of the configuration) supports the cultivation of "tightness" and relatedness between members.

Break

Spatial constraints can alternatively cut members off from one another completely, and disable processes of ensembling.

Methods and behaviors

As they referred to constraints that inhibited tightness and ensembling, Cathy and Tony named several relevant methods and behaviors that were also in play.

Preparation and Focus

The comparison between US and UK quartets supports the argument that preparation (if not *extreme* preparation) and focus increase the likelihood that ensemble will emerge. As Tony said, "As far as the playing goes, I mean, it didn't start off as well [in the UK], because I didn't think [the UK quartets] were as prepared as the Americans were." In the UK, the quartets spent time during pre-rehearsals reading the full four-quartet score to learn how their quartet parts related, and working temporarily with a metronome and with Paul as conductor to achieve fundamental familiarity with the score. In contrast, the US group did not work with a metronome or conductor, but used their time to collectively engage in

sorting out leads, interpreting notations in the score, and tuning; they were able to more quickly realize fundamental skills and focus efforts on interpretive work.

Several informants shared observations similar to Tony's, equating the level of preparation in the US to the level of tightness and the quality of listening that happened between members. Some UK informants expressed frustration when they perceived a lack of preparation in their colleagues, whereas this was never an issue in the US. Q4 in the UK was particularly critiqued by others as being under-prepared. They admitted in February to not having rehearsed in advance. Jonathan, cellist of Q4, critiqued the general level of preparation across the project, calling their work as a whole "kind of like sight-reading", to contrast it to levels of "over-rehearsal", which he believed contributed to his experience of ensemble during conservatory training.

In searching to describe the cause of difference in the US, Cathy twice referred to the US groups as more focused: "It's been totally different [in the UK]…Especially because it had been so focused in New York. People [in New York] were very, very, very, very keen to *listen* to you, and then also put their point across, which was valid." As a result of the level of focus, she considered the US quartets more receptive, more open, and their contributions more "valid" to the work. In the UK, member involvement resulted in a chaotic experience, like too many "cooks" in the kitchen, instead of a productive one. Everyone was "involved" but "doing their own thing" instead of working towards the common goal, based on listening to collaborators.

Make

Preparation enables groups to work on technical and musical aspects in tandem; groups "get off to a better start."

Focus raises the quality of listening and engagement; members are more receptive.

Break

Lack of preparation causes groups to spend more time mastering fundamentals.

Lack of focus decreases the quality of listening and engagement.

The Struggle Phase

Cathy contrasted the US and UK experiences by referring to the latter as birth by Cesarean, and the former, which included time in which the group collectively engaged in sorting out the difficulty of coordination across distance without technological aid, natural birth. This pre-technology phase of rehearsals also became know as "the struggle phase." The struggle phase was a time of intense exploration, evaluation and debate, during which the US musicians exercised multiple forms of communication simultaneously—spoken dialogue, musical dialogue, and new forms of visual and embodied cues. Cathy credited this phase of the work with providing the US quartets opportunity to develop a "higher quality of listening" compared to their UK counterparts.

When I spoke to Tony about the differences between the US and UK group experiences, I asked if he thought the struggle phase had made a difference. Once I'd suggested the idea, he became convinced the struggle phase amounted to a significant difference:

> Q: Do you think that there was an impact to *starting* with the click-track here, versus in the US, you had those two days of kind of fighting it out?
>
> T: [*overlapping*] Yeah! Yeah, yeah, yeah, yeah. I wondered about that, actually. Whether we actually fought it out, so when we got to the click-track, there had been a certain—having *arrived there*, [having] tried everything else, a certain relief. But also, made it easier [to use the click-track]. Whereas now, [in the UK], we haven't been through the process of playing it—or we have [some], in February—playing it all together as a group, trying to fit it together…This time, it's just like, "Put that [earpiece] in your ear and play." So it's—because you don't get an idea of what it sounds like, obviously.
>
> …

> …But I think we've got there, in the end. I think it sounds good. But I think you're point about, I mean, that we didn't actually work it through first [without the click-track], was a good one. I think it made a big difference actually, in New York.

Tony suggests several benefits of the struggle phase. The US group experienced together the feeling that they had "arrived" at a solution with which they were ready to agree; evidence that they had cultivated and achieved a moment of consent collectively as a group (as opposed to being told, "Put this in your ear and play"). Having spent time exercising alternatives, they were able to experience the click-track as a relief. Playing with the click-track was a task they could perform with greater ease, having invested time doing more difficult work of coordinating without it; perhaps that preliminary work informed the readiness with which they incorporated the click-track into their process, reconceiving it as the fixed pulse that enabled play. The US quartets also had time to "get an idea" of what the music sounded like, to their naked ears, before adding earpieces and an artificial pulse.

As discussed in Chapters 6 and 7, Q2 first violin J experienced the struggle as both a special quality of the process of performing collaboration-as-conversation, and as a special quality in the aesthetics of the performance: It was the struggle of four quartets, or voices, coming together across the divide. As such, the struggle phase is an example of how musicians cultivate and maintain "an inherently unstable situation"—the difficulty of enacting coordination across distance—which Austin and Hjorth (2012) describe as a method by which groups cultivate conversationality and relatedness. The struggle to sustain coordination, given the inherent instability of doing so organically in stretched conditions, kept the US quartets deep in conversation. Not only were they striving to hear one another, but they rehearsed deep listening with their bodies, pulsing in time with one another physically (when they could see, but not hear), and giving leads together with that pulse. Given that these methods (deep listening, collectively leading) are intrinsic to ensembling, the struggle phase provided the US group opportunity for, as Paul calls it, "forging ensemble." Paul induced similar struggle early in Medici's career by choosing "impossible" pieces for them to play, pieces that raised particular challenges of timing and organization, so that Medici musicians were forced to address issues of ensembling. The near-impossibility of coordinating across distance in the Spiral staircase provided the US group opportunity to forge ensemble via intense struggle.

In contrast, the click-track, by solving the difficulty of coordination, threatened to introduce stability into the process too quickly, rendering these behaviors and activities that had previously cultivated relatedness and ensemble unnecessary. Indeed, once the click-track was introduced in the US, the physical and verbal conversation between groups diminished significantly. The click-track stabilized the process, with a steady pulse, and ordered the groups: first violins were now charged with leading their colleagues. However, Cathy described how participants made deliberate choices to sustain pre-technology behaviors, increasing her experience of relatedness:

> …I think with the click, J was—it was quite nice. [J] and I still wanted to have that eye contact [we had without the click-track], because there were a couple of times when we would always look at one another, and you know, we both lead [simultaneously], and look down [to lead the others]. [*As she says this, she pulses her head as if in time with him*.] Whether we really needed it [is debatable], but it was nice. You know what I mean? It was sort of—it made the music, for us. It made us feel like we were connecting. So, even though we had the click, I could see he still wanted that, and it was quite nice for me as well.

Having developed and exercised ways of "connecting" that were necessary to sustaining coordination pre-technology, Cathy and J continued to engage in those behaviors with the click-track. In this way, they were able to continue to experience relatedness, in the form of deep listening with the body and shared leadership.

While I have described "struggle" that quartet musicians take on—either deliberately, as in the example of Paul's choice of music for Medici, or as a result of performance conditions, as in the case of *Towards Silence*—as conducive to ensembling, Q4's experience in the US reminds us that there is a limit to a group or organization's tolerance for struggle and difficulty. The degree of instability or difficulty needs to be kept within a zone of productivity, for all participants, when members have uneven experiences of constraints. Cathy pointed out the difference in experience across groups:

> The Coriglianos [Q4] were different, because they had no communication with anyone. It was difficult. I think they've always been out on a limb in this project, being the fourth quartet on the bottom [of the configuration]…they couldn't really hear or see what was happening anyway.

Q4 experienced a higher degree of difficulty than the others, and were the first to cry out for help when the quartets began rehearsing in the Spiral staircase. Unable to hear or see, they were excluded from engaging in activities that cultivated relatedness or ensemble, until the click-track was introduced. In this case, too much instability was a result of work conditions; we might imagine other examples in which behaviors increase instability in ways that likewise exclude certain members of the group (i.e. competitive behaviors, personal bias, preferential treatment). Such conditions and behaviors break ensemble.

Make

A pre-technology "struggle phase" within a process, during which time the group explores multiple modes and methods of communication for coordinating their work, increases their capacities as a group (unbounded by what the technology requires), and develops their listening capabilities.

"Arriving" at agreement through collective processes of exploration, evaluation and consent.

Methods and behaviors that maintain or enhance process instability, or otherwise cultivate experiences of relatedness.

Break

Skipping the "struggle phase" and relying immediately on technology to organize (and stabilize) the process.

Instability or difficulty in the process that results in the exclusion of certain members from activities cultivating relatedness.

Collective engagement and leadership

Cathy also differentiated between the US and UK experiences by describing the quality of engaged contribution and leadership that was happening in the US and lacking in the UK. These activities seem to go hand-in-hand. Fenella explained that when collective leadership is happening in a quartet or group, it's hard to differentiate which acts are "leadership" and which are more generally collaborative acts:

> I mean, what is leadership, as opposed to working together and collaboration? Different people can take the 'lead' at different times, or different people contribute at different times. It's a fine line, and you know, it's difficult to pin down sometimes. But sometimes it was very clear, you know, that each quartet was giving the lead…in a traditional sense. But then, as you could see, different people were voicing their opinions.

She observed her colleagues in the US contributing to their collective work in both ways. Related to their being more prepared and focused, the US quartets took greater initiative in contributing "valid" ideas and in leading. Cathy praised their work at the end of their first rehearsal by acknowledging that they were "all leading and not leading"—in other words, engaged in leadership collectively, without dominating one another. Alternatively, she grew frustrated with the UK quartets for not listening to one another's contributions or making more focused contributions, and for not taking the initiative to lead in their work on the *Four Seasons*.

The perception of collective engagement and leadership potentiality differed for some participants in the UK. Q4 violist Drew said that subtle forms of musical leadership (i.e., a nanosecond's cue) would normally be shared amongst members equally: "It should be generally a 25-25-25-25 split of leadership, though in reality it might be 28% viola, or something." However, he and his colleagues felt constrained by the click-track and the leadership they were getting from their first violin. Second violin Ed said, "In this, the first violin is the leader. Normally we'd pass [leadership] around." Feeling constrained by the click-track, members of Q4 had little motivation to "really go for ensemble." Drew claimed he felt no responsibility for leadership with the click, and was feeling "complacent" because, "It's all up to Simon [our first violin], and I can blame him if it goes wrong." When I asked Ed whether or not he could hear or see (and respond to cues from) other quartet members at Colet House, he said he hadn't even bothered to wear his eyeglasses. He had already decided to rely on Simon for leads. As Q4 demonstrates, when collective leadership breaks down, it

indicates that members are no longer sharing responsibility for the work and are no longer motivated to ensemble.

Not everyone felt this way. In Chapter 7, I described the ways in which many participants in the US and UK were successful in reconceiving collective leadership practice in relation to the click-track, to support ensembling.[74] As Tony described, UK participants did take more and more responsibility for leadership over time, starting with the first violins and progressing to other members of each group, indicating progress:

> Tony: ...[The quartet] leaders have taken control, responsibility, as the week's gone on, and actually leading more and keeping it together….They weren't doing that [before].
>
> Q: In what way are they leading?
>
> Tony: Well, physically leading…beats. [*He pulses, demonstrating.*] And making sure they're together in their quartet. And you can see, there's actually leads going on within each quartet. So they're actually playing within themselves as well. So it's not just a click-track, but they're actually playing together and trying to lead each other. Which is good.
>
> Q; And it's a different kind of leadership than what you would normally do, right?
>
> Tony: Yeah.
>
> Q: I mean, there's a click they have to communicate.
>
> Tony: Well, it's just purely a rhythmic leadership. In a way. It's just to keep the whole thing together. And then musically, I think everybody's just playing, responding to one another, as you would anyway, within each group. We can't respond to each other outside the group, because we can't hear them.

[74] An important difference between Q4's response to the click-track as compared to others who were more successful at recovering collective leadership behaviors could be attributable to the fact that Q4 was the only group who had organized temporarily as a quartet for the purpose of the project. They had no tenure as a quartet together (by which to have developed processes for sharing leadership), and were uncertain as to whether or not they would pursue a future relationship as such (which may have motivated them to work on developing those processes).

An important difference persists. According to Tony, less leadership was happening *across* groups in the UK as had happened in the US—for instance, when Cathy and J led beats together. Cathy and Tony attributed this variation to the lack of a struggle phase in the UK, which had cultivated relatedness between US quartets. Others attributed it as well to external leadership behaviors, which I discuss next.

Make

Collective engagement (born of listening, preparation and focus) and leadership. (It matters whether collective leadership is crossing boundaries of sub-groups as well as happening within sub-groups.)

Break

Attitudes of complacency in response to constraints, resulting in a lack of equal leadership initiative.

External leadership behaviors

Project leadership in the UK was assumed by Paul Robertson and shared to varying degrees by other members of the Medici Quartet, who took the initiative to join in organizing and leading the process and in giving feedback to participants. Paul's contact with the Rubin Museum in the US led Producer Tim McHenry to agree to co-commission the project and host the world premiere. Paul's Trust also co-commissioned the piece. Paul and Tony worked together to make arrangements with concert venues and producers in the UK, and planned configurations with producers in advance of concerts. Paul organized participating UK quartets, and Ivo organized US quartets from his vantage as a professor of music in the US, which meant that quartets received their invitation to participate from Medici members. Participants referred to *Towards Silence* as "Medici's project," and, in some cases, "Paul's project." However, Paul wasn't well enough to travel to the US for that phase of the project,

and Cathy took his place as first violin. As a result, the US and UK phases of the project were led by different members, who led differently.

External leadership applies to the leadership (or coaching) activities that guide and support the work process, and can include (among other things) ensuring participants have the resources they need to do the work, setting the direction (or objectives) for the group, determining how time is used, and offering feedback (Hackman 2002, Hackman and Wageman 2005).[75] External leadership is not at odds with collective leadership practices in groups, and can be performed in ways that support this method. Carson, et al (2007) describe the antecedent conditions that lead to the development of shared leadership as internal team environment (shared purpose, social support, and voice) and external coaching/leadership, described by Hackman and Wageman to involve directing interaction to "help team members make coordinated and task-appropriate use of their collective resources in accomplishing the team's task" (2005: 269). While Jonathan used the word "dominant" to name the kind of leadership behavior he considers more effective—a word that suggests a more control-oriented approach that limits group member autonomy—he actually describes leadership actions that would enable the group to more effectively carry out "democratic" processes of discussion and decision-making.

Assuming responsibility for external leadership activities does not exclude the leader(s) from participating as a member of the group, and in fact, in this case, external leadership activities were intertwined with musical leadership internal to the work process. As the first violin of the first quartet, Paul in the UK and Cathy in the US were expected by colleagues to provide both kinds of leadership. In terms of musical leadership, as Cathy put it, they were expected at least "to sort of *start* the leading", which was then shared more equally amongst participants. I will focus discussion on external leadership activities, though the two forms of leadership are frequently intertwined in informant reports. Comparing Paul and Cathy's leadership behaviors offers further clues as to which behaviors seem to best facilitate ensembling.

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[75] While Hackman (2002) encourages us to focus on how leaders shape conditions in order to enable better group performance, rather than considering leader behaviors to have a direct influence on team performance, informants in my study were often interpreting differences in behaviors, and then linking those behaviors to problems or variations in the conditions of their work together. And I am investigating, in this section, how methods or behaviors support or hinder processes of ensembling.

Paul's leadership, both of the project as a whole as well as his musical leadership, was generally characterized as unstable, and as such, frustrating for many participants. Instability in his behavior caused instability in the work process. Unfortunately, this instability did not flourish into the kind considered conducive to developing dialogic relationality (Austin and Hjorth 2012); it did not foster multi-voicedness and processes of integration, but rather frustration over a lack of clear direction and management of group decision-making processes. As Medici colleagues reported and as I observed, Paul's behaviors were uncharacteristic of his usual leadership style, which had, during Medici's career, tended to be uncompromising in setting high expectations for the work and managing processes for meeting those expectations. The difference was due in large part to health complications that were beyond his control; he simply didn't have the energy and stamina to perform the role as he might like. At the same time, rather than relinquish the role to others, he occupied the leadership space in rehearsals with what a visiting cameraman referred to as a "Top Dog" persona: Paul walked into the room, and eyes automatically followed him. Paul set the agenda for rehearsals, and was usually the one to interrupt playing to offer direction or feedback to others.[76] Others often waited for that direction before offering their own input, if they did so at all. At other times, he withdrew from rehearsals to rest, leaving the others to sort out an alternative approach to managing *Towards Silence* rehearsals, an effort at which they never productively succeeded. At times, he would appoint Cathy or Ivo to lead in his place, instructions that were vaguely respected by the group. While his colleagues understood Paul's health constrained his behavior, they nonetheless found it frustrating to experience a lack of clear and consistent leadership.

I spoke with Tony about the difference in leadership between the US and UK phases, and how that impacted the work. As I warned earlier, he moved from musical to external leadership activity in his assessment:

Q: How is it playing with Paul in the group this time, compared to New York?

T: As opposed to Cathy?

Q: Yes.

[76] Even if his leadership was inconsistent, Paul's feedback and direction was considered seriously by participants, who often sought out his advice and coaching during breaks, or before and after rehearsals.

T: It doesn't feel as vibrant, because he can't give it. He's not—he's a bit [*He slouches his body, as if tired*], you know…It's good he can do it, and get through it. But he's not [*He grabs a violin in the air vigorously and sings a section of music*] all these other things, you know. Giving it that [attack]. It's a bit sort of like that [*He slouches again*]. Sort of tired, exhausted. But I'm pleased he can do it. It's his project.

Q: It seems to have changed the leadership dynamic too, in terms of the larger group, compared to New York.

T: … I think so. [*He hesitates*.] Yeah, I think so. I mean, it's mainly come from …Cathy, Ivo and myself [in the UK]. Probably, because we've done it before [in the US]. I mean Paul, he's nothing like he used to be, as far as—he hasn't got an interest in taking over, and saying things. I mean, he is [taking over] a little bit, but nowhere near the way he used to be.

Q: I was just saying to Cathy that it's an interesting dynamic that Paul is in the first violin position, now, which is the person who typically takes leadership, but he's not leading, necessarily—

T: No, he's not at all.

Tony concluded by saying that he, Cathy and Ivo were taking control of more external leadership activities now, late in the game. When I spoke with Cathy, she described the difficulty inherent in trying to take over leadership of the rehearsal process mid-stream, as well as to lead when one isn't in the first violinist's chair:

Q: You were much more clearly the leader I think in New York--

Cathy: Yeah [*She nods*].

Q: But here Paul has stepped in to that position--

Cathy: I've found it hard, because Paul's not there. And so, you know, I'm in a funny position because I can't [lead]. And then [the other musicians] don't react to me in the same way. Because I'm a second violinist, I'm just a second violinist. Which is fine, but - so it's a funny one where [*She gestures with her hands as if she's trying to keep a balloon in the air or something balanced lightly in her hands*]. I've sort of found myself thinking, 'Okay, this [process] is a bit chaotic for me, but…' [*She*

> *shrugs*]…I think within the second or third day of this, me, [Tony] and Ivo stepped up. We realized that we had to do this sort of without Paul—that Paul would come and he would play and do his talks and be the figurehead. But we had to sort of get the quartets into some discipline....
>
> …I'm in a difficult position because I'm not leading the quartet [musically]…So I'm always slightly on a back foot…it comes better from Paul, because he's the leader, and I'm - I *feel*, [*her hands go to her heart*] for me, because I find it very hard, I don't want to interfere, but I'm not quite sure where I stand. It's a very difficult one.

Cathy experienced a difference in how members of the group responded to her leadership as compared to Paul's, based primarily on their perception of who should be leading the process. Paul had initiated leadership from the beginning, and Paul also held the first violin chair in the first quartet. As Cathy points out, she couldn't take over musical leadership, as the structure of the music inhibits her from doing so: she is restricted to the position of second violin both by the music and by her colleagues' expectations for someone in that role. The leadership Cathy, Tony and Ivo offered in latter stages of the UK rehearsal process was of more of a mentorship or coaching role—a relationship that became problematic to ensembling, as discussed in the previous section.

While they resisted leadership from members other than Paul, several participants expressed desire for more effective external direction. When I spoke to members of Q4 in the UK (as quoted in the opening of this chapter), they attributed their inability to experience ensemble in the process to a lack of clear and decisive leadership. Expressing frustration over the lack of direction setting (or, more precisely, a sudden change of course in direction at Winchester), Drew said, "It wasn't exactly communicated to us very clearly from the beginning to the end, or at point during the rehearsal process, why we were doing anything." Jonathan considered any democratic discussions the group was having a total waste of time, given the lack of decisive leadership in monitoring it. He called for a "dominant leader" approach, claiming that productive democratic discussion could best be enabled by such a leader. While Drew didn't readily agree with Jonathan's call for dominant leadership (perhaps reacting to the word "dominant" more than Jonathan's description of leadership behavior), he desired leadership that supported free (and focused) communication between participants. Ed complained about the failure to use time more

effectively, arguing that ensemble would be possible to achieve, even given short time, if rehearsals had been better managed to support its emergence.

While others likewise acknowledged a lack of decisive leadership, they demonstrated more flexibility in how they reacted to the difficulty, suggesting ways in which external leadership behavior might be modified to better support ensembling that differed from calling for a "dominant" directive approach. Natalie thought the experience offered an opportunity to enjoy an alternative way of working with a larger group:

> There've been moments where it's been a *little bit* frustrating. People are like, "Let's just make a decision, just do it." And people have been kind of like, "Well, we can do this, or we can do this." And there are loads of good ideas. …So you've just got to change gear, and change pace. You have to get used to the process and enjoy that. And when you're in a normal orchestra, it's so fast, and just dictatorship all the way. So it's actually been enjoyable that it's not like that [here].

Natalie proceeded to suggest that the way in which they were working allowed for group consensus to emerge, and ultimately supported an instance of spontaneous ensembling in the course of one performance, which she found highly rewarding. As discussed in Chapter 7, members of Q4 themselves, in the pre-rehearsal phase of the work, had gotten on board with a more anarchic, collective approach to leadership they believed Paul to be cultivating in the group by his resistance to performing as a dominant leader. While dissatisfied to varying degrees with external leadership in the UK phase of the project, participants did not converge in agreement around the idea that a dominant leader would be the best route to ensembling; Jonathan stood alone in this argument.

As further argument against the dominant leadership approach, and further example of how external leadership behaviors might best support ensembling, participants in the US phase of the project unanimously praised the quality of collective engagement that Cathy's (and Medici's) leadership engendered. Fenella identified Cathy as the "principle leader" of rehearsals in the US, and described the effectiveness of her approach as follows:

> …She was very much the sort of leader that I like, and like to be myself. And that is that you're someone who's—you create some sort of structure, pulling things together when necessary, but you're creating space for everybody to be—It's a collaboration, you know. It's a space for everybody to feel that they could contribute.

> Which I thought was the ideal. It wasn't, uh, chaotic at all. There were certain points where things had to be pulled together in some way, and they were…I think what was good about what she did—And it didn't just come from her. I mean, the Medici Quartet was sort of set up as the ones who had started rehearsing in advance, and came with particular ideas…But…I think that the idea is that everybody really feels like they're potentially a leader. That they are…absolutely equal. And at different times in a process of both working and performing, you have different people taking different initiatives.

Participants unanimously expressed their appreciation for the quality of collective involvement cultivated by Cathy and Medici's process leadership. J said they were "really great about making everybody feel like they're involved", which included giving everyone a say in the decision about whether or not to implement the click-track. Q3 cellist Andrew called it a "really refreshingly healthy working atmosphere" in which everyone is "filling in" leadership and offering what they think, while staying open to others' suggestions. Openness to others permeated the work environment. Andrew's colleague Keiko expressed her appreciation: "We're very grateful, because some of the quartets are [*she smiles*] slightly older than us. And in the beginning I was afraid that if I said anything that might offend them—But…they're so open minded, great people to work with, and we can learn a lot from them." Q4's first violin Michael expressed his surprise that this approach to leadership had been possible, given time constraints:

> I'd have to say, I've been very, sort of, uh, refreshed, to see how open [the Medicis] are to everyone's input. Which can be difficult in a situation where you don't have *a lot of time* to put something together, the easy way is just to like: [*he gestures two hands grasping*] "I'm in charge, and this is how we're going to do it!" And instead it's really felt like a 16-person collaboration, where I think everybody feels free and open to speak their mind and make suggestions. And people have been very receptive to other people's ideas.

Michael comment also support's Ed's assessment that a limited time constraint does not necessarily determine dominant leadership will be more effective for managing collective processes. He also re-iterates an important quality of the group's work together when engaged in contributing and leading equally: all sustained openness towards the other. Even

with a time constraint of four days of rehearsal in the US, Cathy and her Medici colleagues were able to sustain openness to and invite equal contribution from everyone involved, and to allow consent to emerge through dialogue.

When I asked Cathy whether she was leading the process as a whole, she was reluctant to own that role, claiming that she led "a little bit" but only because the other quartets were looking to Medici to start the process. She expressed hesitancy to step into a role usually filled by Paul. Fenella challenged her on this:

> Fenella: …I bet you anything, from what you say, that your style of leading is completely different from Paul's--
>
> Cathy: Right…Well, I'm not—I'm a bit nervous to be in that position, so I'm always a bit like, [*She speaks softly and apologetically*] "Well if you don't *mind* doing that." And "I think *maybe* we should *possibly* do that. I mean, but what does everyone think?" Because I'm a bit—I'm not so sure of myself. Whereas, Paul would just say [*She takes on a lower pitched, strong voice.*] "Well *I* think we should do this, and I know that this, because John Tavener wrote this, and—" He's much more self-assured, in himself.
>
> Fenella: Is it just that? Because I would say that it was also, it's because you're someone who's interested in the approach of everybody contributing.
>
> Cathy: Well, especially in this project. I think every quartet was so sort of, every quartet was so talented, and had their own life, had it's own career…You know, it felt that you had to have every quartet's input; that they had to feel it wasn't about Medicis mentoring or teaching, really, other quartets at all…It was about very successful young groups, young quartets, who where coming to this project, and they had as much right to sort of take the lead as we did.

Cathy may not have been aware of acting with explicit intention as a leader. However, as Fenella points out, Cathy's belief that equal contribution was a "right" of all participants, and her interest in cultivating a process in which everyone contributes was evident in her behavior nonetheless. She allowed space for everyone to take initiative in leading.

A set of conditions and behaviors came into play that also may have made Cathy's approach to cultivating equal participation in leadership more effective in the US than in the

UK. Carson et al. argue that external leadership is particularly important for the development of shared leadership when teams lack a strong internal environment (2007: 1228). I've discussed differentiating factors between the US and UK groups, including stable group tenure, focus and preparation that prepared the American quartets to take more equal participation in leadership from the outset. The US quartets may have benefitted from stronger internal environments within their quartets due to more stable membership and longer group tenure. Several of the more vocal US participants quickly established leadership in the room, alongside Cathy. They took the initiative to speak up in rehearsals for what they needed, make interpretive suggestions, point out problems, and ask for changes, instead of waiting for a designated "leader" to do that. Participants attributed Cathy and Medici's leadership with creating this environment, and Cathy regularly encouraged their initiative. Whether intentional or not, her behavior, matched with the strong internal environments of the US quartets, served to support the emergence of ensemble. Alternatively, difficulty with democratic processes could be attributable to weaker internal environments within quartets, given their comparative lack of tenure, compounded by the newness of internal relations between the groups at the four-quartet level. This condition may have agitated Q4's need for more decisive external leadership.

Make

External leadership behavior that creates an attitude of openness and space in which everyone can contribute to processes of decision-making and leadership (i.e., has autonomy) supports the emergence of ensemble.

Break

Unstable external leadership behavior inhibits clear direction setting and productive democratic/collective processes of decision-making.

AUTONOMY AND ITS LOSS: Comparing concerts

In the last subunit comparison of this analysis, I look at how two concert events unfolded in very different ways to understand why some participants perceived one event to be a success of ensemble and some perceived the other to be a failure of ensemble. Both concerts took place in the UK with the same participating members. I start with the perceived breakdown of ensembling at Winchester Cathedral, the site of the highly anticipated UK premiere performance, the rehearsals of which composer John Tavener attended. I seek to better understand this breakdown by comparing the behaviors and conditions surrounding this event to those surrounding the prior evening's concert at Westminster Synagogue. Interestingly, participants based their assessment of organizational success and failure on different criteria than aural or visual aesthetic preference: some musicians preferred the acoustics and grand architecture of the Cathedral as a performance venue, yet more of them reported better experiences of relatedness and ensemble in the Synagogue. While differentiating qualities in performance conditions were relevant, I find the primary differentiating factor between perceived success and failure to be the degree of autonomy members experienced, and with which they were either able to make, or prohibited from making, decisions relevant to pursuing their objective to realize the composer's vision.

I spoke with members of the Finzi Quartet (Q2) immediately following the Winchester premiere. As a way of reflecting on their experience, they initiated the comparison between the Cathedral and the prior evening's private concert at Westminster Synagogue:

> Q: How do you feel about tonight's performance in Winchester Cathedral?
>
> Sara: I think what [Paul's son] Caspian was saying…is very true, actually. The fact that we were all [configured] kind of more central, with the lights, bright lights, it didn't quite feel as atmospheric as it has in other venues.
>
> Natalie: I enjoyed yesterday [at the Synagogue], because we were almost audience members ourselves—We just "happened to be there".
>
> Sara: Yeah.
>
> Natalie: And I love the fact that it was so informal, that it seemed really friendly, and, kind of, integrated. Whereas today, it was very much the usual [concert experience],

where we're on the stage, and the audience is there [in front of us]. And it wasn't that interaction that we had yesterday.

Ruth: Basically, tonight it felt like a performance of some kind, whereas last night it wasn't. [Last night]…it was like a meditation.

Natalie: It was an experience!

Ruth: Yeah. I think even everyone was saying yesterday how they were somewhat hypnotized. Do you know what I mean? There was something very kind of equal about everyone in the room [musicians and audience]. Whereas in this, with the platform—

Sara: Being filmed as well.

Ruth: Yeah! [*She makes a face expressing distaste*.] …And also just being higher up on "an alter" just seemed very, kind of, I don't know. It felt less atmospheric because we didn't have the sounds from far away. They were so near…

Natalie: And also because we do have the technology, with the click-track, to be able to not be able to see each other and still keep it together, and have the effect [of sounds from far away]. I was *really* looking forward to this big space where we could be in completely different parts of the [building]—[*She stretches her arms out, indicating long distances.*]

Sara: Yeah.

Natalie: --and make the most of having this annoying click-track, as it were. But we didn't get to do it yet, so it was really sad.

The performance configuration at Winchester fell far short of meeting the shared objectives and aspirations for the performance that had been cultivated in rehearsals, leading to a discouraging experience for many, as Sara, Ruth and Natalie expressed. Winchester Cathedral was originally conceived as the pinnacle experience of the UK concert series. Being the Cathedral that boasts the longest Nave in Europe, it was specifically chosen as a venue in which Tavener's vision for music performed by four quartets, distributed in

the far corners of a "spiritual space" and hidden from view of the audience, could be most fully realized. Musicians had readily agreed to implement the "annoying" click-track in anticipation of experiencing a pay-off when able to realize Tavener's vision by performing at distances that would render aural and visual communication nearly impossible, but create the "effect" of "sounds from far away" as Tavener intended. Not only did they look forward to experiencing the ultimate stretch in configuration, they looked forward to Tavener's attendance. The Cathedral would close from 4:00 to 5:00—an unheard of courtesy—to allow the ailing composer what might be his only opportunity to experience his music performed. He would receive a private concert that day, and the next day enter hospital for another in a series of intensive surgeries aimed at extending his fragile life. Ruth told me she expected them to perform for a meditative Tavener alone, the Gothic interior lit only by dim candlelight. Natalie expected hushed silence to precede the entrance of the ethereal creature come to hear his music, expecting he would then, as if satisfied by the realization of a final wish, take his last breath and die. They both admitted their dramatic expectations had been cultivated by Paul's inspiring descriptions in February.

But participant expectations were surprised upon arrival at the Cathedral at 2:00 PM that afternoon. Instead of dim candlelight and far corners, they were greeted by hot lights and television camera equipment that defined a centralized configuration for the four quartets, confining them to close proximity on the Quire and placing them in full view of one another and the audience. Oppositions to the configuration were vehement (as described in Chapter 3), but went unheard, for two primary reasons: (1) reconfiguration would have been too costly: the BBC radio and private camera crew had been at work since 8:00 AM setting up equipment; and (2) Paul, along with Tony who had coordinated the configuration with crews in advance, had chosen to favor media benefits over the aesthetic experiment called for by the score. Despite Tavener's direction that the four quartets be heard and not seen by the audience, they needed a visual, as well as aural, event to film.

The musicians settled into their pre-arranged seats, and rehearsal commenced, which participants described later as consisting of "purely pragmatic" and "technical" as opposed to "musical" work. One participant referred to rehearsal as nothing more than "a sound check" to test equipment and adjust sound levels and articulation to the acoustics of the space. When Tavener did arrive, 20 or so other people still lingered in the building. He sat in the first section of pews, eyes wide open, appearing easily distracted by activities

around him. The musicians played *Towards Silence*; the crews filmed their first take. Following the rehearsal, Tavener said nothing in particular to indicate whether or not he was satisfied with their performance or the configuration.

Several participants, however, expressed multiple reasons for their dissatisfaction with the event and the disruption this caused in processes of ensembling. As Q2 discussed above, the configuration radically altered the aesthetic: rather than a meditative "experience", with a special quality of atmosphere, it felt like a usual concert. Ruth found the performance conditions antithetical to the work process, as she had understood it, as it drew her attention to the wrong things:

> We were also very aware, because of the cameras—like I was very aware at one point [that] perhaps I was moving too much, compared to the rest of the quartet. Whereas all the other times, [in other venues,] I could move naturally… I was [also] aware of fingering more, and then I thought, I really shouldn't be thinking that way! Because some of the writing [in the score], for instance, "individual pulsing", I was sometimes very aware that I had a different kind [of pulsing], which is fine…it's supposed to [be like that]. But all of a sudden you're kind of aware of symmetry, and how things look on camera. Which is not really, I think, the process [for this piece] at all. I mean, it had such a positive response from so many people. I just think it would have been even more effective if we were in different corners, and nobody could see anyone.

Ruth became overly concerned with the visual aesthetics of her performance, which inhibited her freedom of expression and the individuality she had been cultivating as part of the dialogue inherent in the piece.

Natalie also expressed disappointment with the configuration, reporting that it changed her experience of the quality of relatedness between musicians:

> I mean tonight, to be honest, we could have been sitting…in a string orchestra situation and playing our parts, and having individual parts. Whereas yesterday [at the Synagogue], it really was the effect of having four groups, you know, that kind of surround sound where you have different things going on. And I thought that's what Tavener was wanting with it.

Natalie's sense of identity within the group and relatedness to others in the group shifted dramatically. She no longer felt part of a quartet of quartets, nor that it was relevant to pursue such relatedness—a quality that had been considered key to the structure and aesthetics of the music, as well as the way in which participants were developing conversationality across groups. In her experience, they lost that special differentiating quality in their relatedness, and may as well have been operating as individuals. This special quality had extended as well to include the audience at the Synagogue, where musicians and audience had a shared, integrated experience together. Rather than feeling as "equals" in the Cathedral, the musicians were set apart, "up on an alter", aware of being watched.

As members of Q4 discussed reasons for why they believed ensemble failed to emerge in the *Towards Silence* project, they pointed again to the inappropriateness of the Winchester configuration for realizing the composer's vision. But their discussion focused less on how conditions impacted qualities in their playing and relatedness, and more on the disruption and disappointment caused by the lack of autonomy afforded them in the process:

> Ed: I mean… where we are sitting now is really different from the score…I mean, we didn't really have a say in that.
>
> Drew: Yeah… We had *absolutely* no say in the moment.
>
> Q: And that was frustrating for you, right?
>
> Jonathan: No, it wasn't. Because by now, in this project, we're used to it, I think.
>
> Ed: Well, it's a bit—
>
> Drew: [*To Jonathan*] It's still frustrating.
>
> Jonathan: I suppose.
>
> Drew: It still means we have no artistic say in it.
>
> Ed: Yeah [*overlapping*]. Because [the configuration] is one of those things that is kind of important [to the score]. I mean, they should have done it. [*He means that project leaders should have configured them at a greater distance, as called for by the score*.]

Jonathan: Right.

Drew: …It is one of *the* most important things, because it's part of the experience. It almost doesn't matter what you do in Bar 9, or—

Ed: [*adding to Drew*] Because you have to experience where it comes from. [*He gestures sounds moving across his body from right to left and left to right.*]

Drew: Exactly.

Ed: If it all comes from the same place, it's just--[*He throws his arms in the air.]*

As Ed and Drew pointed out, the configuration was a key artistic decision to be made in the realization of the composer's vision (the group's shared purpose for the project). As such, they believed they should have had a collective say in determining that configuration. Instead, they were left frustrated, disagreeing with the decision "they" (Medici, as project leaders), made. Their use of "they" underscored the separation that had cropped up between Q4 and other members of the group with whom they should be increasing their relatedness in order to ensemble.

Participant frustration increased given that they believed the whole point of working with the click-track—a compromise to which they had agreed, but another decision in which they had had little say (the US experience led Medici to pre-determine the click-track's use for the UK group)—was to enable them the freedom and flexibility to explore the boundaries of distribution at Winchester. They could realize the composer's vision, and work on the edge (somewhat literally) of their capabilities. Participants had been preparing for the event at Winchester by developing competence for flexibility. They had done the difficult work of adopting the click-track, and adapted their work methods to the constraints this technology placed on their ability to hear one another and the ways in which they could lead collectively. They had performed pre-concerts in two different venues leading up to the Winchester premiere, exercising variations in distribution. They had been developing their competence for adapting to varying degrees of access to one another, improvising supporting visual cues to ensure they stayed together or could recover in the event of a technical glitch or error. They did this all in order to be able to make the most of their opportunity at Winchester. But, as Drew said, the click-track now seemed "pointless",

as they were seated in such close physical proximity and denied the opportunity to experience the larger space. Ed underscored the irony in this turn of events: "it's a shame that we are sitting so close [at Winchester], since we've got the click-track, and we can actually do it far apart." They would have been confined to close proximity if they *hadn't* used the click-track. Now they were denied the opportunity to take advantage of the freedom it gave them, and the competencies they had developed to maximize that freedom.

In contrast to their experience at Winchester, the previous evening's concert at the Synagogue can be seen as a beautiful exercise in how the quartets demonstrated competence when given (or seizing) the autonomy to do so. They exercised the flexibility they had earned by implementing the click-track and rehearsing disruptive configurations, putting these capabilities to use in order to optimize the event. Synagogue Event Producer Renee Salamon had arranged, in collaboration with Tony, for the quartets to sit conveniently together on the ground floor, at the base of an open staircase, while the audience would listen to the performance from their seats on the first floor, at the top of the stair (see **Figure 8.5**). Within five minutes of rehearsal, the backs of their chairs knocking against one another, the quartets discovered that they were too close to one another to properly hear. The music sounded muddled. They doubted that the audience would be able to perceive the conversation between quartets while seated a floor above; this was not a configuration that supported Tavener's vision or the architectural requirements of the score. Participants rebelled against the proscribed configuration and invented a radical alternative: they arranged themselves divided across the landings of the staircase (see **Figure 8.6**). While the quartets in the US had initially perceived the staircase as an impossible constraint, the quartets in the UK now saw the staircase as an optimal condition by which to separate the sounds and achieve a more balanced dialogue between quartets. After a brief rehearsal in this arrangement, Robertson declared the result "ravishing." As members of Q2 described their experience at the Synagogue, they report the success of ensemble. They felt the group achieved an "integrated" and "equal" quality of interaction, not only between musicians, but with everyone in the performance space including the audience.

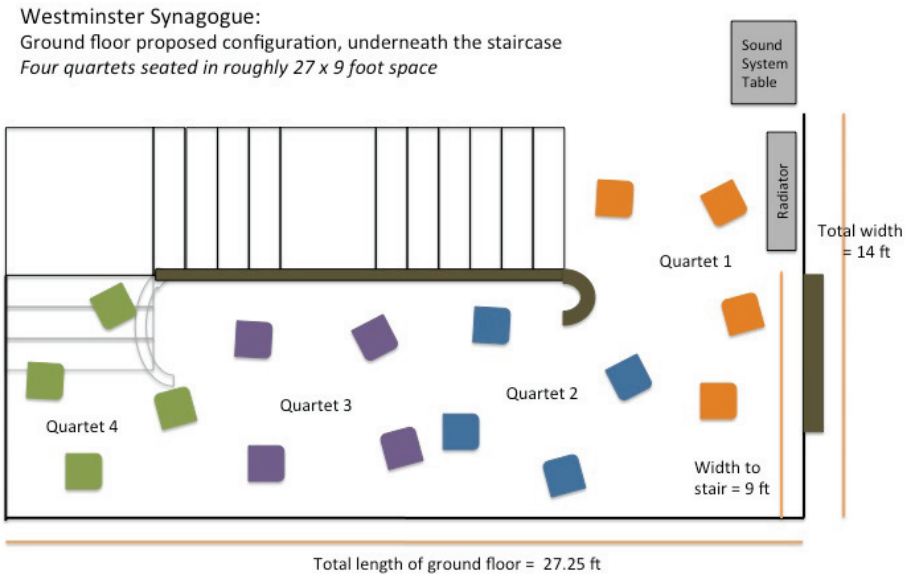

Figure 8.5. Predetermined configuration on ground floor (under the staircase) at the Synagogue; Four quartets seated in roughly 27 foot x 9 foot space.

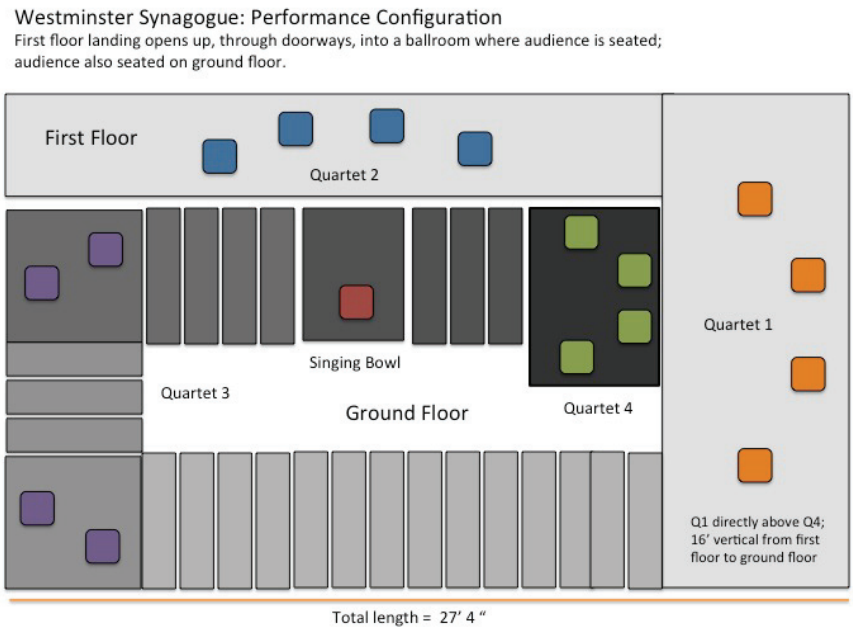

Figure 8.6. Quartet-determined configuration in the staircase at the Synagogue; 16 feet of vertical distance from Q1 to Q4.

Conditions at the Synagogue supported this exercise in autonomy well, in contrast to other venues. The cost of reconfiguration here was low (an underlying economic condition that supports iterative and exploratory innovation processes; Austin and Devin 2003). Salamon had done extensive planning: she showed me computer-generated renderings of the ground-floor configuration and first floor seating. Her crew had arranged chairs, music stands and lighting on the ground floor in advance of the musicians' arrival. Compared to other venues, however, these materials were easily rearranged. At the Colet House Ballroom and St. Mary's Church in Petworth, four heavy wooden platforms had been placed in strategic locations by a crew of workers who departed the site before the musicians arrived. At Winchester, media crews had invested six hours snaking power cords around Cathedral columns and focusing lights. Reconfiguration costs at these three venues were comparatively higher; some considered them to be prohibitive. The best agility was at the Synagogue, where the musicians had only to carry their portable chair, music stand and instrument up a few steps to arrive at a new configuration. Fire code restrictions, Salamon's most urgent concern, were quickly navigated. I joined the support staff in coordinating a quick-exit plan for clearing the staircase. Audience members assisted in propping open sound-activated fire doors. Increasing comfort with the click-track, their first concert now under their belt, gave the musicians confidence to adapt quickly; given less than 30 minutes of rehearsal in this configuration (not even enough time to play through the full 35-minute piece), they sorted out new lines of sight for cuing one another across quartets and worked "ensemble" in terms of the balance and integration of sounds across groups.

The exercise of autonomy at the Synagogue energized the group. They were able to demonstrate their competence with the click-track, increase relatedness across quartets with agility, and quickly configure themselves in order to realize the special qualities they believed to be intrinsic to the composer's work and to ensembling as a quartet of quartets. The loss of autonomy at Winchester, alternatively, led to increased apathy among certain participants, and withdrawal from these pursuits. Again, I spoke to Q4 about Winchester:

> Q: Do you have anything you want to try out in the course of tonight, or anything you are doing to be prepared for tonight?
>
> Ed: Um…[*He shakes his head "not really", and laughs.*] Perhaps it's because of what we were just talking about, I don't really feel that much is sort of—I don't feel that

> sort of personally involved with it…I just, there's a lot just, getting in, playing our notes, doing it, just playing it correctly. I guess, getting it over with. [*He shrugs*.]
>
> …
>
> Drew: …I think for all of us in common, it's just, go out and do the job that is required. It's kind of like what we always do.
>
> Jonathan: Yeah, it's our job.
>
> Drew: It is actually a job. And, although, with certain projects, passion and love and other things [come into play], still it's not like a complete non-point you have to go and play the right notes…You have to do it. But, I feel like this is still just a professional product, at the moment.

Q4 had started the rehearsal process in February as the most motivated of the three guest quartets. They arrived early to rehearsals to work as a group, and stayed late to visit with Paul, and discuss work and career issues relevant to becoming world-class quartet musicians. They spent breaks in intense conversation with one another. They were active contributors to group rehearsals; Jonathan took responsibility for following the full four-quartet score to ensure all groups (who typically worked from a score that isolated their quartet's part from the others) were integrating their parts correctly. By the end of the process, these same musicians appeared visibly disinterested in the work and invested minimal effort. Time outside of group rehearsals was spent on work related to other projects (i.e. solo concerts), and independent of their quartet colleagues. They had grown skeptical as to whether or not they wanted to become a quartet. Drew, who was the most physically animated musician in the group, now slumped in his chair as he spoke about the project, the "passion and love" visibly drained from his body.

As I argued in Chapter 7, string quartet musicians are motivated to demonstrate their professional competence, preferably when that involves demonstrating artistic virtuosity as well as technical skill. This analysis indicates that restricting a group's ability to demonstrate and further develop competence breaks ensemble. Participants were denied the opportunity to exercise the new skills they had invested in developing, which were well outside their usual practices and preferences for working, in order to participate in the artful realization of the composer's vision at Winchester Cathedral. They were also eager to

test their new capabilities in more challenging conditions—in other words, to work on the edge of what they anticipated might be possible, in order to do something new. Instead, they were asked to do work that was too easy—just "playing the notes correctly"—neither engaging their new capabilities nor giving them artistic say in the design of the event. In the next and final performance venue, I observed the change in rehearsal: some musicians were less focused or interested, quartets spent more time rehearsing within their own groups rather than engaging the larger group, and no new ideas in terms of configuration, beyond what the producer had prepared, were tried.

Alternatively, when given the autonomy to exercise new competencies to demonstrate both technical and artistic virtuosity, participants created a performance event at the Synagogue that transformed constraints into optimal conditions for honoring the composer's intent. They designed an "experience" for the audience, and they increased their relatedness for ensembling at the same time. To do this, they willingly took on *additional constraint*, choosing a configuration that limited their ability to hear and see one another beyond the proscribed configuration. Given the choice, participants would have taken constraint to the limits at Winchester; they were eager to configure themselves outside the boundaries of vision and hearing.

Make

Flexibility of configuration/potential for reconfiguration to best realize the group's purpose supports the potential for ensembling. Potential for reconfiguration is best provided when the cost of reconfiguration is low and group members have the resources (i.e. technology), capabilities and autonomy to make changes.

When participants experience autonomy and can participate in decision-making relevant to realizing their shared purpose/goal, they are more likely to pursue ensembling.

When given the opportunity to demonstrate technical and artistic competence, groups willingly take on additional

constraint in order to best pursue ensemble and other shared purposes/goals.

Break

Configurations that contradict or constrain the emerging dynamics (and special qualities) of group member and sub-group relatedness can break ensemble. (i.e. sitting in a string orchestra configuration rather than as distributed quartets).

Lack of or loss of autonomy and involvement in decision-making relevant to realizing the group's shared purpose results in behaviors antithetical to ensembling: i.e., decreasing experience of relatedness, loss of motivation to ensemble, apathetic behavior.

Restricting a group's ability to demonstrate and further develop competence (both technical and artistic virtuosity) breaks ensemble.

CONCLUSION

Based on the positive outcome of seizing autonomy to realize an energizing event at the Synagogue, the UK quartets might have felt empowered to realize similar success the following evening at Winchester by similarly seizing and exercising autonomy. Instead, they were denied the conditions and opportunity for doing so. Based on participant success with the click-track in the US, the UK group should have been better positioned to realize ensemble. They had more rehearsal hours to work with the click-track, and were able to build on learning carried over by Cathy, Tony and Ivo from US experience. However, the UK groups struggled more than their American counterparts for reasons ranging from conditions beyond their control (i.e., Paul's illness, lack of group tenure) to behaviors frustrated by inconsistent external leadership, lack of preparation and the absence of a struggle phase. Despite variations in individual perceptions as to whether the group was

meant to ensemble as four quartets in dialogue or as one homogenous sound, living with the paradox rather than resolving it supported ensembling. Given that experiences across individuals, phases of the process, and concert venues varied, and expectations were not always met as anticipated, we learn something about the making and breaking of ensemble.

Along the way, incidentally, I've also collected a rich set of empirical support for construct of ensemble I proposed in Chapter 5. Participants repeatedly referred to the features that constitute the construct of ensemble as criteria by which they measured the progress of their work together. In the opening discussion, members of the Court Lane Ensemble worked with the criteria to argue for why ensemble was not emerging in their work process, calling for the need for members to put their egos aside and contribute to the greater good; describing a failure to "mesh" or "integrate" or even behave as one group rather than a collection of individuals; describing contradiction, conflict and lack of attentiveness rather than shared intention and highly attuned dialogue. Tony and Ivo kept the pursuit of synchronized individuality alive while advocating the development of a homogenous sound. Amy expressed her regular ambition to "become one entity with three other entities." Cathy and Fenella underscored the criticality of experiencing collective leadership and equal engagement. Natalie and Ruth expressed their delight with the Synagogue performance on the basis of experiencing a kind of communion not only with one another, but with the audience as well.

In this chapter, I have used comparison between subunits of the primary case study as a method of analysis in order to increase our understanding of what makes ensemble possible and what breaks ensemble. I have focused my attention particularly on the work conditions and methods or behaviors that either enable or disrupt ensembling (acknowledging the limitations of attempting such classification), sticking close to data both in the form of informant reports and my own observation of their work process and practices. Along the way, I've summarized findings in lists of "make" and "break". Rather than repeat those findings in total here, I will use what I've learned in this analysis, and synthesize those findings with the findings from prior analysis. In the next and concluding chapter, learning from Chapters 6, 7, and 8 will be taken into consideration as I revisit the framework of ensembling and propose revisions and extensions to that framework.

Chapter 9. CONCLUSIONS AND FUTURE WORK

I sit down to talk to Towards Silence *project leader Paul Robertson about how [*my study of how work groups ensemble*] is progressing:*[77]

Q: So, you're feeling good about it?

*Paul: Yes, no it's good…what might appear from the outside to be an incoherent kind of continual exploration and discourse and debate and divergence is my natural territory. That's what [*ensemble*] should feel like, to me.*

*…I mean, it's only playing with words, but this [*study*] is sort of pre-rehearsal, really. It's getting enough of a grip on [*ensemble*], so that now everyone can both consciously and unconsciously assimilate issues. Hopefully do some actual technical work themselves…and it will be quite different later on.*

Q: But they needed this phase—

Paul: Oh, you can't get to the other stage except through what we just did. What will actually happen is that…there will be another whole set of issues and tensions…Because what will happen is that everyone will…create distortions peculiar to them…Their personalities…will tend them towards assumptions that this should be this, and that should [be that]...

*Q: Even despite making the [*framework*] and all that?*

Paul: Oh yeah. That's too crude. You have to do it because there's got to be some yardstick…

*Q: So what do [*we*] do [next]?*

Paul: Start all over again.

Q: Oh!

[77] This is a fictionalization of a real encounter; *asterisks* indicate author's creative additions to the original interview text.

Paul: But you're starting over again from a higher place. And in a perfect world, you just keep doing that over, and over, and over, and over again. And then at a certain point you have something that is…a proper interpretation.

*Q: What do you think it will take for ensemble to be [*understood*]…?*

*Paul: Well [*hang on there, not so fast*], there's a whole lot that you can't rush. I mean, one of the problems is that…there's quite a lot that you have to assimilate, because it's in an alien language…Which means….until you get to the point where you can actually have a dual attention…until you do that, you don't even have the beginnings of an [*understanding of*] ensemble. And that takes time. There's no quick way of doing that, as far as I know.*

This study of ensemble and ensembling proceeded in three main phases. First, I constructed a framework of ensembling from extant theories surrounding ensemble and the work of high-performing teams (Chapter 2). I presented it as a reconstruction of our expectations of this phenomenon, immanent in our thinking, acknowledging I did so at the risk of making it too orderly. Then, I engaged new data, including fieldwork, interviews and a preliminary case study (Austin and O'Donnell 2007), to present a more complete framework of ensembling in natural conditions (Chapter 5). Again, I acknowledged that my strategy of conceptually separating methods and conditions from the complex process of ensembling in which they are embedded is problematic as well as potentially useful for enabling deeper explorations. Informants themselves often separate methods conceptually to facilitate learning and address difficulties in practice. In the third phase of the study, I turned to data generated from the focal case study, the rehearsals and performances of *Towards Silence*, to explore ensembling in stretched conditions (Chapters 6-7-8). In this closing chapter, I bring together and integrate conclusions from this case study, presenting those conclusions as revisions to the evolving framework of ensembling, and suggest a new current status of our understanding of this complex phenomenon. The revised framework, including validation and rich description of the parts of ensembling, is my primary contribution.

After summarizing research findings, I then open them to further investigation and alternative perspectives. I reflect on the study, consider my contribution, and look forward to next steps. I playfully started this process in this chapter's opening creative revision to an

early interview with *Towards Silence* project leader, Paul Robertson, in which I used his description of the work of ensembling as a metaphor to reflect on this study as one iteration in a longer process of exploration involving multiple participants. As part of the first section of this chapter, I compare the analytic approaches I took, and invite a problematization of findings that, I hope, encourages alternative perspectives to be developed. In the second section, I relate findings to theory to suggest my contribution to research, and comment on ways in which practitioners might make use of this study. In the third section, I introduce a new story of ensembling, from data, to suggest yet another perspective, in order to remind us, again, that our understanding will increase by staying open to new potentialities. I proceed then to reflect on the limitations of this study, as a way to invite further study. In the fourth section, I propose recommendations for future research and situate this study as a phase in an ongoing investigation of ensembling in diverse work conditions. I conclude by expressing my hope that I have increased our precision as social scientists with this study of ensembling as a special form of collaborative creativity, and that work will continue to address multiple forms of collaboration with similar aspirations for precision.

SUMMARY OF RESEARCH FINDINGS

In this study, I demonstrate that ensemble becomes possible when group members share a purpose to ensemble and have the autonomy to adapt their process of ensembling (made up of a variable set of methods) to address changing conditions. I establish a construct of ensemble, based on how participants experience this phenomenon and recognize it in practice. Then I expand our current understanding of the methods experts use *to ensemble*, by exploring their practice in both natural and stretched conditions, and by describing in detail how they transformed their work practices to accommodate a particular set of changing constraints. I also contribute new insight into the range of conditions/constraints within which ensembling can be made possible (though there is evidence processes of ensembling can sustain further range in constraint; participants didn't exceed the limits). I offer two primary interpretations of how work groups ensemble as conditions change: In Chapter 6, I showed how participants engaged in iterative processes of exploration that altered their beliefs regarding how ensembling becomes possible given conditions of increased group membership and task complexity, mixed group tenure, increased spatial distribution, and configurational variability. In Chapter 7, I showed how participants

opened their process to uncertainty and reconceived constraints and behaviors in ways that increased their capacity for ensembling and allowed new possibilities to develop that increased autonomy, competence and relatedness in their work together. Finally, I generated additional findings based on three comparisons across subunits of the case study, in order to discover when and how certain work conditions or behaviors either make or break ensemble.

In this section I summarize findings, at the risk of appearing to reduce complexity, to suggest a revision to the framework of ensembling that synthesizes learning from the study of how work groups ensemble. I reflect on two interpretive approaches I engaged in this study, to ensure the reader knows my intent with proposing alternative understandings and integrating findings from both in the framework. I support this revision to the framework with a summary of evidence that elaborates on the methods and conditions of ensembling, in table format. I then discuss a few of the key learnings from this study, to refresh our minds as to the multiple interpretations and movements that are part of this complex phenomenon.

Elaborating the framework of ensembling

I use findings generated by analysis and interpretation in Chapters 6-8 to propose a revision to the Framework of Ensembling (see **Figure 9.1**). Findings have implications for the methods and conditions of ensembling, as well as the group beliefs and outcomes, though I have emphasized the former in my investigation. I summarize findings that inform this revised framework, in terms of methods and conditions for ensembling, in **Tables 9.A** and **9.B**. I propose this framework of ensembling as one way to organize learning from my investigation of how work groups ensemble, and as a possible tool for further research.

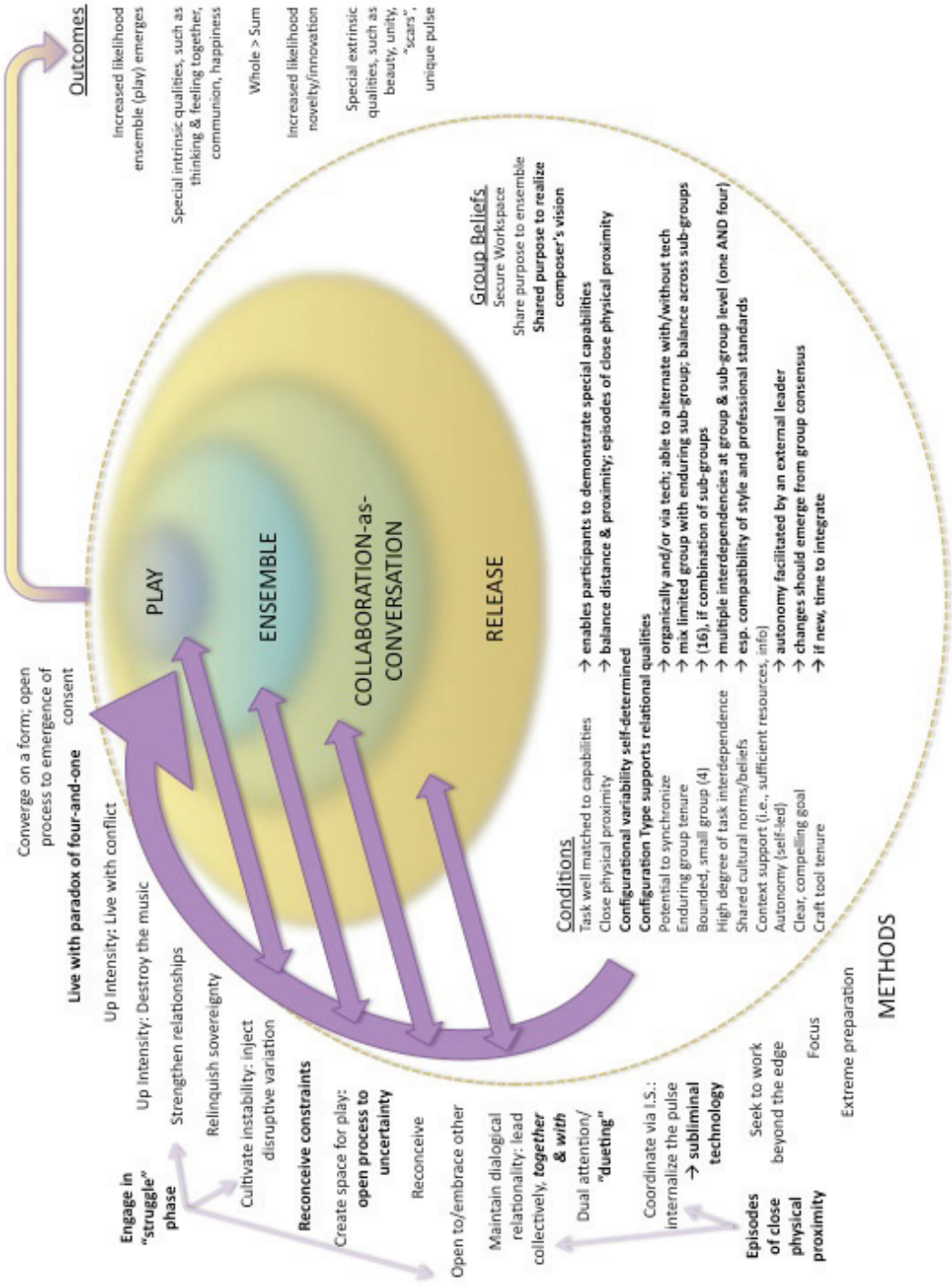

Figure 9.1: Proposed Framework of Ensembling (bold type indicates revisions/new contributions since the last iteration in Chapter 5)

The framework has notable limitations. It cannot depict the dynamic relationship between conditions and methods that I explored in my interpretation of the processes by which participants made ensemble possible, nor can it depict the ways in which participant beliefs evolved in the course of exploration. Another limitation, in this case related to the way in which I conducted this study, is that I have little to contribute in terms of supporting, refuting, or developing the relationships between the theoretically-derived four qualities of collaborative, artful making. It may be that future study and iteration on this framework will yield a new image in regards to these qualities. Austin and Devin (2003) suggest they are both mutually co-existing and progressively emergent. I generated no evidence to refute their progression, though I have suggested (in Chapter 7) that the mid-process emergence of qualities such as play, open exchange, and the sense of everyone leading equally, motivated participants to believe ensemble was possible and to pursue it in practice. Because this suggests a permeability in the progressive order, I blurred out the boundaries between qualities and implied more iterative interaction (with arrows) between the emergence of qualities and the performance of methods.

Another reservation I have about the framework regards outcomes. I do not mean to imply that ensembling or the emergence of ensemble and play leads *inevitably* to the creation of novel and valuable outcomes.[78] Nor do I mean to imply that such outcomes can *only* result when groups achieve a peak-performance experience. Groups like string quartets routinely create novel and valuable performances, regardless of whether they experience themselves to be "one body". The qualities of their personalities and relationships, their unique rhythms for achieving synchrony, and the degree of unity and anarchy within their dialogue are all perceptible (to the expert listener at least) in the special qualities of the outcome. Such qualities can be evident in work that achieves "only" a high degree of collaboration-as-conversation. The anticipated emergence of the peak experience of ensemble serves more to motivate and shape participant methods and behaviors than it does to shape outcomes; it is the methods and behaviors that shape outcomes, though diverse other conditions also come into play. Natalie was so energized by her experience of ensemble in the group's performance of the Vivaldi *Seasons* at Winchester, when "everyone was so clued in" that they reacted together within a "mini-second", that it

[78] I make this point in Chapter 5, and in the construct of ensembling: "A common (but not necessary) consequence of ensemble is work that is perceived as unusual for its distinctive quality, value or power."

raised her level of attention and relatedness (she shared a "big smiling session" with a colleague across the configuration) for the reminder of the concert. It also served to counteract her disappointment in the *Towards Silence* configuration at Winchester and keep her engaged for the remainder of the project.

I suggest, however, that the data does demonstrate that participants look for and recognize "ensemble" both in the special qualities intrinsic to the process of ensembling (e.g., experiences of relatedness) and in the special qualities exhibited by outcomes (e.g., sounding as one voice). They believe special qualities of the process (for instance, the "human" quality of struggling to communicate across spatial divide) manifest in the outcome, contributing to its novelty and meaning. They aspire to achieve those special qualities, and believe that the peak-experience, and at the very least the pursuit of that experience, alters the outcome in important ways. As I discussed in the conclusion of Chapter 8, during the *Towards Silence* project, participants repeatedly evaluated outcomes according to criteria related to the features of the construct of ensemble: whether they were producing one homogenous sound that simultaneously contained four distinct voices within it, whether they achieved an experience of "communion" with one another (and with the audience as well) which made for a more successful event, and whether they were behaving as if they were a collection of individuals or one body contributing toward the greater good. Though participants do not depend on realizing ensemble in order to generate novel and valuable outcomes, they do need to believe that they are making ensemble possible through their collaborative processes, and see indications of its likely emergence in outcomes to feel that the are fulfilling their professional ambition.

Multiple interpretive approaches to understanding ensembling increase findings

In this thesis, I used multiple approaches to interpreting data and generating findings. In the first, I constructed an iteration-based analysis of the work process, describing how participants engaged in a series of explorations to determine which responses were best suited to realizing their objectives given constraints. In the second, I used two key features of ensembling as frames for interpreting participant actions, in order to understand how they generated potentialities for performing their work in ways that went beyond what they could anticipate. The first interpretation informs us how participant beliefs evolved

regarding what responses (including certain behaviors and methods) best interacted with conditions to increase the likelihood that ensemble would emerge. The second interpretation shows how participants cultivate spaces of uncertainty in their work to allow new possibilities to enter, and to develop responses to constraints that increase their autonomy, relatedness, ability to demonstrate artistic virtuosity—overall, their capacity to ensemble. I then used comparison between subunits embedded in the larger case, in Chapter 8, to generate additional insights into what factors made ensemble possible in stretched conditions, and what factors disrupted its potential.

These approaches are meant to complement rather than substitute for one another. I believe both movements I describe in Chapters 6 and 7 are present in processes of ensembling (potentially other movements as well); I recognize both from my experience working in theatre ensembles. At the same time, the second interpretation problematizes some findings of the first. In the first analysis, I argue that musicians believe certain methods and behaviors will increase the likelihood of ensembling, and act on the basis of those beliefs until they learn otherwise. In the second analysis, I provide examples in which the emergence of qualities of ensemble early in the process inspired participants to believe ensembling was possible and to invest in ensembling behaviors. This raises at least one question: do ensembling behaviors lead to the emergence of ensemble, or are these things co-emergent? Perhaps both movements are possible, even mutually supportive. The emergence of ensemble and related qualities reinforce participants evolving beliefs and shared purposes, strengthening their resolve to practice ensembling, which increases the likelihood that qualities of ensemble will continue to emerge. I do not try to resolve this paradox; I am not convinced it is wise to do so. I draw on both interpretations to build findings. Even as I order findings in tables and in the framework, I hope to keep returning to the complexity inherent in the phenomenon, to increase, rather than constrain, future understanding.

Ensembling Methods and Conditions

Whether through discovery born of iterative trystorming, or through acts of reconceiving and generating new responses to increased constraint, participants in the *Towards Silence* project demonstrated new strategies for "making" ensemble and revealed several

conditions and behaviors that inhibit or "break" ensemble. Strategies included methods and behaviors, as well as ways in which conditions were experienced as or reconceived to become conducive to or detrimental to ensembling. While participant actions and behaviors offer support for several of the methods and conditions of ensembling with which we are already familiar, several present new possibilities or variations on known possibilities that expand the range of responses possible, suggesting more routes to ensembling than those which we (as well as informants) already knew before the *Towards Silence* project and study. Some methods and responses are specific to conditions that involve some degree of spatial distance and that require technological mediation[79], but most teach us something about ensembling in natural conditions as well. The following tables trace the empirical development of my understanding regarding methods and conditions relevant to ensembling. I summarize and provide guidance for reading these tables following their appearance.

[79] Those methods more relevant to conditions of spatial distance and distribution point to new potentialities we might explore in future research, as I discuss later in this chapter.

Method of Ensembling	Source of method in literature	Description of method in literature	Example (or counter-example) from data in natural conditions	Suggested revision/elaboration of method	Example (or counter-example) from data in stretched conditions	Suggested further revision/elaboration of method
Extreme Preparation	Austin & Devin 2003; O'Donnell & Devin 2012	Activities to master craft/ fundamentals that allow for reflexive action (A&D 2003); Preparation "involves learning and practicing whatever you need to know and do in order to be ready to learn whatever needs to be learned and do whatever needs to be done" (O&D 2012)	Paul: "For the first 15 or 20 years we rehearsed every day of the year, for between four and six hours, and we would do three to four hours of practice between rehearsals…Because without that I didn't feel remotely prepared" and "If you don't lay down the architecture [you can't achieve the extraordinary]—We're talking extremely subtle."	*Support & extend*: "Extreme preparation": involves establishing a shared understanding of the architectural/ commanding form and mastering fundamentals. Technically and musically oriented activities are mutually supportive; Ivo: "they're just different aspects of the same thing". The more technically demanding or "new" the task, the longer the time needed to prepare.	Tony: "As far as the playing goes, I mean, it didn't start off as well [in the UK], because I didn't think [the UK quartets] were as prepared as the Americans were."	*Support & extend:* Lack of preparation combined with new task and increased task complexity can lead to separation between technical and musical activities, as groups spend more time mastering fundamentals; sufficient preparation in sub-groups on the other hand enables work on technical and musical to proceed in tandem. (CH6&8)
Focus	Austin & Devin 2003; O'Donnell & Devin 2012; Sawyer 2007 calls this "concentration"	Exercising "skill at directing attention away from a source of tension (A&D 2003: 88) in order to become "comfortably aware" and "productively focused" (Ibid: 90)			Cathy: " [I]t was easy to rehearse [in New York], because they were more receptive…They just seemed to sort of do the job….It's been totally different [in the UK]…Especially because it had been so focused in New York. People [in New York] were	*Support:* Focus raises the quality of listening and engagement in group processes; members are more receptive. (CH8)

					very, very, very, very keen to *listen* to you, and then also put their point across, which was valid. So it was a very different atmosphere."	
Seek to work (not on, but) **beyond the edge**	Austin & Devin 2003 (work on the edge); Austin & Hjorth 2012 (up intensity); *Austin et al 2011 provide empirical evidence of how a range of makers work* ***beyond*** *the edge*	"Ensembling is held together by affect, by intensity in relations…" (A&H 2012); Motivation to work in the zone of discomfort in order to achieve learning, discovery, creative action (2003: 123-124)	Paul: "You are like forever stepping over into the abyss. If you're not, you're not playing Beethoven. And if you're not, you're not in a creative team actually. You're just a bunch of safety-first accountants."	*Extend by revision*: Choosing to engage in work beyond the edge of known capabilities forges ensemble.	Natalie: "because we do have the technology, with the click-track, to be able to not be able to see each other and still keep it together, and have the effect [of sounds from far away]. I was *really* looking forward to this big space where we could be in completely different parts of the [building]…and make the most of having this annoying click-track... But we didn't get to do it yet, so it was really sad."	*Support*: Winchester was meant to be the ultimate "stretch" experience, beyond range of sight; participants were deeply disappointed when they were denied the opportunity (CH8)
Coordinate via interactional synchrony: **Internalize the pulse → with technology, perform interactional synchrony via "subliminal technology engagement"**	Sawyer 2005, 2003; Condon and Ogston 1967, 1971; Schutz 1964; Weeks 1996	Interactional synchrony is "rhythmically coordinated interpersonal interaction" the social processes by which people synchronize verbal and non-verbal behaviors (S 2005: 52); it involves "living	Lydia: "[the pulse becomes] internalized a bit in me, where I feel like I have the pulse sort of physically in me"; Ciaran: "because we're used to playing together, we probably all have our own sense of, as the four of us, our own	*Support & extend*: Interactional synchrony performed as "internalizing the pulse"; each group develops it's own peculiar, collaboratively accomplished, sense of time as a felt pulse, allowing for difference; "accuracy" in timing is determined in	Ivo: "[the click] becomes more…subliminal …It's like a heartbeat…[and] because you're used to it being there, you can withdraw your awareness from it."; Tony: " [We're learning how to use] the click more as a guide. How to get used to playing with the click there, but	*Support & extend to include tech*: When working with technology, perform interactional synchrony in relation to the artificial pulse in a manner similar to working with an organic pulse. (CH6&7)

		together simultaneously in specific dimensions of time" (S 1964)	sense of rhythm or our own sense of being together."; Paul: "The group as an ensemble will create distortions peculiar to them."	relationship to one another rather than to the score.	not making it as a God, I mean, so you can play around. The click will obviously be in the same place, but you can interpret it within that rhythm, that's going on."; J: "potentially it could give more sense of kind of breathing [together], and you have a little more creative license that you can take."	
Dual attention; also as "dueting" in different sub-group configurations	--	*Austin and Devin suggest this in their description of focus: "you're comfortably aware of everything that's going on around you, and you're productively focused on what you are doing." (2003: 90)*	Paul: "you get to the point where actually you can just do [the fundamentals] *totally* automatically, so that you can actually have a dual attention—so you can attend to yourself, but that is secondary to the level of attention you're giving to the group—until you do that, you don't even have the beginnings of an ensemble."	*New*: Members practice dual attention when they are able to minimize self-awareness and increase their capacity for attending to others and to emerging interactions between members.	Fenella: "You're both trying…to kind of pair with [your] quartet…or the whole…But at different moments, you're focusing on different things; Natalie: "You're never really on your own, because we've always got things in duets…But it's whether your dueting with someone next to you, or as a whole quartet, or between four people in different [quartets], your ears are kind of everywhere." (CH 8)	*Support & new variation*: As membership increases, dual attention becomes enacted as a strategic and dynamic vacillation between "dueting" in different configurations: in pairs, within your own unit, across units, and with the larger group. (CH8)
Maintain dialogical relationality, *via* ***leading collectively: "together" and "with"***	"Maintain dialogical relationality" from Austin & Hjorth 2012	No one logic, idea or person dominates, allowing for opposing ideas to become	Fenella: "I think that the idea is that everybody really feels like they're potentially a leader. That	*Extend by addition*: members maintain dialogical relationality by the practice of	Sam: "so it was very important that…were coordinated both ways. Not necessarily that we were leading and	*Support & extend*: When stretched conditions and tech inhibited collective leadership, participants

		integrated (A&H 2012); *Leading collectively briefly touched on by O'Donnell and Devin 2012: "Sharing and spontaneously passing leadership among members…[means that everyone] responds to each leadership action with a new action that in itself can 'lead' the group"…*	they are…absolutely equal. And different times in a process of both working and performing, you have different people taking different initiatives." Ivo: "The dichotomy is you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals."	leading collectively, actively responding to one another with contributions that can themselves be taken as leads. *Leading together* suggests a variation on this practice that indicates ensemble as "acting together" is emerging.	they were following, but that we were both leading… Because if we started to try to lead, the group [directly] below us couldn't see."; Ivo: "But the thing is obviously we follow Cathy, and at one point I'm sort of leading a lot with her."	developed strategies to lead "together" and "with" one another (e.g., mirror & transform leads; both leading, CH7&8); It matters that collective leadership and engagement is pursued across sub-group boundaries as well as within sub-groups (CH8)
Open to/embrace other, *for instance, via deep listening*	Austin & Hjorth 2012; O'Donnell & Devin 2012 and Sawyer 2007 call this "deep listening"; Seddon & Biasutti (2009) call this "empathetic attunement"	Members open themselves to being affected and "include the Other's work as part of [their] own" (A&H 2012); Deep listening is a demonstration of this: to empathize with the Other, "so that the [Other's] materials enter your mind…as material for new thoughts and actions" (O&D 2012)			Cathy: "We went to New York and it was a different vibe...[I]t was easy to rehearse, because they were more receptive…People [in New York] were very, very, very, very keen to *listen* to you, and then also put their point across, which was valid."	*Support:* members more receptive to the contributions of others when engaged in focused listening (CH8); leading "with" and "together" offer other examples of deep (embodied) listening
Reconceiving (a)	Austin 2000; Austin & Devin	"an iterative process in which performers				

	2003; Austin & Hjorth 2012; O'Donnell & Devin 2012	generate a new sequence of rehearsal events from holistically combining the last rehearsed sequence with new information, ideas, and materials" (A 2000: 10); doing so, they "make new, unpredictable ideas" (A&D 2003: 169)				
Reconceiving (b) -- **Reconceive constraints and behaviors to increase potentiality**					Ivo reconceives the aesthetic in relation to the constraint of the click-track: "The point in Tavener's music is an absolute inner pulse with stillness around it."; Ivo reconceives their behavior with the click-track: "it becomes more…subliminal…It's like a heartbeat. It's there, and you can be aware of it, you can focus your awareness on it."	*New variation:* Participants reconceived constraints and behaviors, changing the way they thought about what they were doing, to generate potentialities for new methods to emerge (or latent ones to be developed) that increased member autonomy, competence and relatedness (CH7)
Create space for play, *for instance, via opening processes to other motivations and practices…seen here as* ***Open process to***	Austin & Hjorth 2012; Hjorth 2005	Establishing "spaces for creativity" (H 2005: 394) within the organizational order, opening the organization to do things			Paul: "It may just be that it can work in a way that we haven't yet sussed out…You never know what's possible until you actually try, and we're not	*Extend by addition:* By delaying closure and opening the process to uncertainty, members create the space for constraints

uncertainty		for reasons other than economic; new practices are invented and work transformed in this space (Ibid)			equipped enough to try it yet."	and behaviors to be reconceived, and new practices to emerge (CH7)
Cultivate instability, *i.e., via* ***injecting disruptive variation***	Austin & Hjorth 2012; Austin 2000 and Austin & Devin 2003 talk about bringing divergent ideas in	"conversation does not deny or resist the instability of dialogical relationships" but cultivates "multi-voicedness" or difference and conflict (A&H 2012); Even seemingly incompatible ideas that inevitably arise between actors are "good", in that they are part of "the energy that propels the process" (A 2000:20)	Paul: What I'm lacking is somebody who will do something so outrageous that it completely raises the game. Somebody needs to quite willfully and craftily change tempo, dynamic, emotion, intention…It's getting too integrated"	*Support & extend by addition*: Injecting disruptive variation is an act of leadership that cultivates instability in the work, so that new ideas (even disruptive ones) are regularly introduced to counter movements towards stability.	Cathy: "I do think that the struggle and the strife in any group, it has some sort of reward. Even though, as you saw in New York, it got quite heated." Fenella: "as you could see, different people were voicing their opinions."	*Modified Support:* Intentional disruption was not in evidence—likely because newness and variability of conditions caused enough instability; however, US participants did express their opinions freely, despite disagreement, and UK quartets injected disruption when exercising their autonomy to reconfigure the event at the Synagogue, willingly *increasing constraints* (CH6&8)
Relinquish sovereignty	Austin & Devin 2003	Group members "begin to see their particular effort as part of a larger and more expressive whole thing" and relinquish sovereignty (ownership)	*Described as a feature of ensemble:* Robertson: "[It is an] extraordinary feeling [for] four people who've gotten to know each other so well to give up something of themselves	*Support*	Jonathan: "It's not ensemble…It's… people in pairs, by themselves, playing together…No one is really contributing to the greater good… Ultimately, a good ensemble is a different body…And that	S*upport*: Jonathan equates a failure to ensemble with a failure to act on behalf of the "fifth body" of the quartet. (CH8) Keiko suggests that they usually work towards letting the music (the

		over their own contributions (A&D 2003: 128)	into the middle while regaining some control." (Pidgeon 2001)		hasn't happened here…I think the egos get in the way."; Keiko: "if you are very relaxed, and if you're part of the flow, I think the music will speak by itself. Which is what we're usually trying to do."	emerging whole) take over. (CH7)
Strengthen relationships/increase relational intensity – *for instance, via interactional synchrony or play*	Austin 2000; Austin & Hjorth 2012; see also, citations for Interactional synchrony	Ensemble "forms gradually as personal relationships strengthen" (A 2000: 9); the "mutual tuning-in" (S 1964) process involved in interactional synchrony facilitates the development of mutual expectations, strong emotional connections and trust between people; Play "leads to the creation of a particularly intimate and effective organizational entity" (A&H 2012)	*Described as a feature of ensemble:* Cathy: "Occasionally in the past …we would get the ''Really True Connection.' And when you get it, only the quartet knows…[T]here's a certain something that happens, and it's almost like—you can't really describe it. I suppose it's just an inner communication"… Paul suggests that the intimate connection enables "opening, and the release of boundaries" (R2007)		Cathy: "[J] and I still wanted to have that eye contact [we had without the click-track], because there were a couple of times when we would always look at one another, and you know, we both lead [simultaneously], and look down [to lead the others]. Whether we really needed it [is debatable], but it was nice…it made the music, for us. It made us feel like we were connecting."	*Support:* Pre-tech struggle phase and the practice of leading together or with are examples of how participants increased relational intensity in stretched conditions. (CH8)
Up intensity: ***Destroy the music***		*Has implications for several theoretical variables, while going beyond prior*	Paul: "It completely shakes the foundation…once you start questioning things like	*New*: Destroying the music breaks members free of routine or assumption, calling		*Not demonstrated:* Task complexity, limited tenure, and variable conditions

		expectations for those methods: i.e. extreme preparation, cultivating instability, and dialogical relationality.	that…who's to say who's right. So useful rehearsal for me was to take something we knew, and then destroy it by debating the validity of what we were doing."	everything into question and generating instability in the work that ups the intensity of ensembling processes, while allowing for a state of simplicity to emerge in later iterations.		meant work had not settled on routine or assumption.
Up intensity: ***Live with conflict***			Paul: "living with an open wound is also quite a creatively interesting place"; and "[conflicts] leave scars. And it's the scars that make [the music] interesting."	*New*: Living with conflict, rather than resolving conflict between members, can make possible a "different set of expressive possibility" and manifest as a special quality in the work.		*Not demonstrated; see the "healing story" later in CH9 to consider benefit of resolving conflict.*
Converge on a form – first requires groups to ***open the process to the emergence of consent***	Austin and Devin 2003	This activity happens in the context of play; Play is "the form on which action converges, but which never locks in on perfect repetition"(A&D 2003)	Robin: "The question of how you resolve those [disagreements] is one that everybody has to contend with. What has surprised me over the years is that very often you cannot come up with a resolution that is apparent at the time. So very often, the disagreement is left. But then, come the concert,	*Extend by addition*: opening the process to the emergence of consent means that groups resist resolving difficulties through negotiation, and allow themselves to collectively "arrive at" a decision or solution best suited to the moment in the context of play.	Tony: …"we actually fought it out, so when we got to the click-track, there had been a certain—having *arrived there*, [having] tried everything else, a certain relief…This time, it's just like, 'Put that [earpiece] in your ear and play.'" COUNTER EXAMPLE AT WINCHESTER: Drew: "We had *absolutely* no say in the moment."	*Support:* "arriving" at agreement through collective processes of exploration, evaluation and consent (like the struggle phase) supports ensembling; in contrast, authoritative acts of decision making that supersede group processes break ensemble. (CH8) Also, reconceiving constraints/be

			some strange alchemy has taken place, and a good solution has been arrived at.”			haviors only works if group prepared to realize rightness of idea. (CH7)
Engage in a (pre-tech) struggle phase - NEW					Cathy: “As I said earlier, it was like having the baby by Cesarean [in the UK]. In New York, it was like going through a labor to have your baby…And I do think that the struggle and the strife in any group, it has some sort of reward.”; Tony: “we actually fought it out, so when we got to the click-track, there had been a certain—having *arrived there*, [having] tried everything else, a certain relief. But also, made it easier [to use]. Whereas [in the UK], we haven’t been through the process of playing it…all together as a group, trying to fit it together…This time, it’s just like, ‘Put that [earpiece] in your ear and play.’”	*New:* Engaging in a (pre-tech) “struggle” phase enables groups to increase their collaborative capacities unbounded by technological constraint; in this case, struggle manifested as a variation on achieving interactional synchrony via pulse and elaborate system of leads. It has implications for other methods: i.e., increasing dialogical relationality, exercising deep listening, and cultivating instability. Without a struggle phase, technology threatens ensembling by stabilizing the processes by which dialogic relationality emerges. (CH8)
When stretched, engage in **episodes of close physical proximity - NEW**					Fenella: *episodes of close physical proximity afford people opportunity to contribute more*	*New:* Episodes of work in close physical proximity enable equal engagement in music making

					freely to the conversation as equals, "because you can't really communicate in the galleries much, verbally." And Paul: "Yeah, [we'll be miles apart in performance], but I feel that it would be lovely to get it modulated *as if* it was an ensemble [while seated in a circle]."	and in evaluation/decision-making processes. Episodes also enable members to behave as if one ensemble and tune themselves to one another to develop a unified sound. (CH6&8)
Live with paradox of separate (four) and unified (one) voices - NEW			*Suggested as a quality of ensemble, but not described as a method in natural conditions.*		Ciaran "When [ensemble is] working well it should sound as one. Even though there's individual voices within it…. I suppose that's why it's good that it's four *quartets* playing together, because then hopefully they'll be more inclined to play together as one, as well."; Fenella: "It's both. You're both trying to…pair with [your] quartet, or the whole, you know."	*New:* Ensembling involves simultaneously engaging in dialogue as (i.e., four) individual voices and blending into one unified whole; this extends to subgroups as well, who should continue to develop both a group voice and a unified whole across groups. (CH8)

Table 9.B: Methods that support ensembling, elaborated with new data

In the above Table of Ensembling Methods, I indicate where examples from data in stretched conditions support what we knew from prior research and previous study of ensembling in natural conditions (Chapters 2 and 5 respectively). I indicate what I consider to be new contribution to our understanding in bold type, and differentiate between different kinds of contributions. Those methods that appear to be new to our understanding of ensembling, and which emerged as participants responded to changing constraints, are flagged as "new" in the final column. Those methods that are familiar to us, but appeared with some variation, are flagged as "extend by addition" or "new variation" in the final column. Sometimes, data offered extension to our current understanding of known methods, which I flag as "support and extend", after which I describe the way in which our understanding is revised. Some methods are simply "supported" while two are "not demonstrated" by new data. I refer to the chapters in which these methods are discussed in detail, in the final column.

To summarize the contributions outlined in this table:

> ***New methods*** demonstrated in this study of ensembling in stretched conditions include: engaging in a (pre-tech) struggle phase to increase dialogical relationality and cultivate instability; including episodes of close physical proximity (when stretched) so that group members can behave as if one ensemble; and living with the paradox of one and four.
>
> ***Variations on a familiar methods*** that appeared in this study include: dueting as a new variation on the method of dual attention (the latter being a new contribution that emerged from the study of ensemble in natural conditions); and reconceiving constraints and behaviors as a variation on the practice of reconceiving during iterative work.
>
> ***Extension to current understanding*** gained from this study include: how preparation combines with a group's ability to engage in technically and musically oriented activities in tandem, based on ideas developed during the study of ensembling in natural conditions; how collective leadership is performed across subgroups and as leading "with" and leading "together", which extends our understanding of how collective leadership contributes to developing and

sustaining dialogical relationality; and creating space for play, which appears in this study as opening the process to uncertainty.

Known methods that receive support from this study include; focus, seeking to work *beyond* the edge (a variation introduced in Chapter 5); opening to the other through deep listening, cultivating instability; relinquishing sovereignty; strengthening relationships; and converging on a form by first opening the process to the emergence of consent, the latter part of which was introduced by our study of ensembling in natural conditions.

Two methods are ***not demonstrated*** in this study, in my estimation; both are ways to "up intensity", and both were introduced by data from the study of ensembling in natural conditions: destroy the music and live with conflict.

While I present "subliminal technology engagement" as a variation on the familiar method of coordinating via internalizing the pulse, I set it apart in this summary, as we may find that it constitutes an importantly new method, as it is further explored in other contexts.

Next, I present findings related to the *conditions* of ensembling, in the following Table:

Condition of Ensembl-ing	**Source of condition in literature**	**Description of condition in literature**	**Example (or counter-example) from data in natural conditions**	**Suggested extension or variation of condition**	**Example (or counter-example) from data in stretched conditions**	**Suggested extension or variation of condition**	**Extended Range of Condition**
Task well matched to capabilities (CH 2) → increase complexity to challenge capabilities (CH 5)	Csikszentmihalyi 1990; Hackman 1987	"Individuals members have high task-relevant expertise" (H 1987; Challenge of the task should be well-matched to the skill of the performer (C 1990).	Robertson was the self-professed "best player of [his] era" (Austin and O'Donnell 2007:4); Also chose tasks that challenged capabilities: "You are like forever stepping over into the abyss. If you're not, you're not playing Beethoven. And if you're not, you're not in a creative team actually. You're just a bunch of safety-first accountants" (Robertson 2007).	*Support with variation:* Task should challenge, not just match, group capabilities, or else "you're not in a creative team".	Paul: "…you are expected to know how to play 'in time.' …that's the kind of basic starting place of competency that you have to use, particularly if you are going to be in an ensemble… But of course it's also totally negating of the inherent beauty, musicality, poetry and expression of the music itself." And Ed: "I don't feel that sort of personally involved with [the project]…I just, there's a lot just, getting in, playing our notes, doing it, just playing it correctly. I guess,	*Support with variation:* when combined with other "stretches" can mean more time spent on "technical" mastery; Not enough to be asked to demonstrate technical competence, need tasks designed to allow participants to exercise their artistic virtuosity; groups will even take on additional constraint if given autonomy to exercise capabilities (CH7&8)	Task well matched to capabilities → increase complexity to challenge capabilities → **Task designed to enable participants autonomy to demonstrate *special* capabilities**

					getting it over with."		
Close physical proximity (a)	Sawyer 2005; Kiesler &Cummings 2002	Close physical proximity is needed to enable interactional synchrony; has range of benefits for interdependent group work: improves group commitment, builds stronger social bonds and group identity, and "is the most powerful medium known for coordinating work within an interdependent group" (K&C 2002:64)	Steinhardt: "God has given us peripheral vision. That's enough for everything you need in a quartet….I don't have to see [John's] expression …but I must be able to see his bow and, above all, the fingers of his left hand." (Blum 1986:14)	*Support*	(1) Cathy: "I think for me, Colet House didn't work…Personally I felt really disengaged from the sounds. We were in the corner. I couldn't really see the quartet right over there." (2) Ivo: "it's the isolation you actually need to kind of hear what's going on. You know, if we were [seated] all together as a group, we wouldn't hear so much."	*Support with variation:* (1) **Support**: The degree to which a member or group can ensemble with others is dependent on the degree to which they can hear (or see) others; (2) **Variation**: However, when configured in sub-groups, the right balance between spatial proximity and distance between groups enables them to ensemble both as four voices in dialogue and as one homogenous voice; Can be "too close" to properly hear/differentiate, can be "too far" to be engaged. (CH6&8)	Close physical proximity → **Degree of physical proximity (can hear and see some members) as well as degree of distance (can hear and differentiate voices) / Balance between**
Close physical proximity (b)					Paul: "at least we can behave as if we are one	*New:* When working with a degree of distance,	Close physical proximity → **or potential**

					ensemble"; Fenella: episodes of close physical proximity afforded participants opportunity to contribute more freely to the conversatio n as equals, "because you can't really communica te in the galleries much, verbally."	the potential for episodes of close physical proximity helps develop the group as one ensemble (CH8); critical early in the process for foundation al work (e.g. pulse), and beneficial in later stages to "tune" ensemble and equalize communica tion (CH6)	**for episodes of close physical proximity**
[Standard/ stable proximity and configur-ation] (a)					Tony: "I'm not worried about *Towards Silence*. We have the click-track."; Drew: "[the configuratio n] is one of *the* most important things, because it's part of the experience. " Ed: ""it's a shame that we are sitting so close [at Winchester], since we've got the click-track, and we can actually do it far	*New:* Configurati onal variability was a given condition of project work, however when participants were able to exercise autonomy and competenc e to determine their configuratio n, they were more likely to ensemble (CH8)	**Configurati onal variability self-determined : able to adapt quickly given technology support, low cost of reconfigur-ation, and autonomy to reconfigure**

					apart.”		
[Standard/ stable proximity and configur-ation] (b)					Natalie: “[At Winchester] we could have been sitting…in a string orchestra situation…and having individual parts. Whereas [at the Synagogue], it really was the effect of having four groups.” Ivo: “we’re not going to get that [homogenous sound] with the [spatial] spread of sound [in the Spiral staircase]”; vs. Ivo: “I think today [at Winchester] for the first time, because of the, just the acoustic of the place, I was more aware of the whole.”	*New:* The type of spatial distribution influences perceptions of proximity and relational qualities; it affects the quality of ensemble, and needs to support their emerging relational dynamics (at group and sub-group level); horizontal distribution may be more conducive to ensemble. (CH8)	**Configuration Type (e.g., horizontal or vertical distribution; distance between sub-groups) supports relational qualities**
Potential to perform synchronous work (achieve interactional synchrony) (a)	Weeks 1996; Sawyer 2003, 2005; Condon and Ogston 1967, 1971	Interactional synchrony depends on the possibility of synchronizing verbal and non-verbal behaviors to enable	Precise, synchronous coordination is a critical feature of ensemble in live performing groups; Paul: “…they	*Support*	Ivo: “If you don’t have the click, you’re relying totally on what you hear. And in a big space what you hear is delayed.”	*Support with variation:* Requires technology, when degree of physical proximity exceeds what can be managed	Potential to synchronize work → **organically and/or via technology to support coordination; considered critical**

		interpersonal communication.	were there into kind of like a coherent whole within about two beats. And that's fine, that's how it should be…they just kind of immediately locked in."			organically (CH6)	
Potential to perform synchronous work (achieve interactional synchrony) (b)					Cathy: …"I think with the click…[J] and I still wanted to have that eye contact [we had without the click-track], because there were a couple of times when we would always look at one another, and you know, we both lead [simultaneously]…it made the music, for us. It made us feel like we were connecting …even though we had the click…"	*Variation:* Aside from achieving interactional synchrony, participants are invested in having the conditions needed to increase their sense of relatedness—this has to do both with conditions and methods (CH 7); one example is to have time to work with and *without* the technology, alternately (CH8)	Potential to synchronize work → **and increase relatedness (i.e. via opportunity to work with and without technology alternately)**
Group tenure, enduring (a)	Hackman 2002; Sawyer 2003, 2007; Edmondson 1999 (time-limited vs. enduring	Group tenure, the duration of time a group has experienced stable membershi	Change in group membership inhibits ensembling: Paul: "[Taking on a new	*Support with variation:* When enduring tenure is disrupted by the	Paul: "It would be harder not to play together than it would be to play	*Support with variation:* Benefits of group tenure (at least within quartets or	Group tenure, enduring → **can sustain a mix of limited (full group) and**

	group tenure); Salas et al 2005; etc.	p to develop capabilities, (i.e. for performing interactional synchrony), and for developing shared mental models (S+ 2005), shared commitment, and a shared pool of knowledge. "[G]roup flow is more likely to happen when players know the performance styles of their teammates and opponents" (S 2007: 51)	member] definitely faltered our progress, because we were playing very well up to that point, and it held us back for probably a couple years. It takes about two years to get someone in, really."; Jonathan attributes ensemble in part to living & working together for 2-3 years	introduction of a new member, it takes time to integrate that person into the group, temporarily disrupting ensembling; It also changes group dynamics, meaning that a different quality (for better or worse) of ensemble will emerge as a result.	together [given our history] …[T]here's just a pattern of adjustment and usage."; Tony: "…the fact that it is four separate quartets… is what makes it work. Because if you had 16 people who didn't, you know, had never played together before, it wouldn't work."	sub-groups) apparent; ensembling possible in larger groups if membership combines enduring (sub-group level) and limited (full group level) tenure. (CH6&8)	**enduring (sub-group) tenure**
Group tenure, enduring (b)					Cathy: " that balanced us a bit…because we had an older quartet who understood where we were coming from… and they were very easy to work with."; Cathy: "Every quartet [in the US] was so talented, and had	*Variation:* Given compatible skill level, some degree of balance (or perceived balance) of tenure across groups supports ensembling; imbalance of tenure across groups (some limited tenure groups) may result in	Group tenure, **balanced (across sub-groups)**

					their own life, had it's own career... You know, it felt that you had to have every quartet's input; that they had to feel it wasn't about Medicis mentoring or teaching …It was about very successful young groups…[who] had as much right to…take the lead as we did."	hierarchical /mentoring relationships and activity that inhibits ensembling (CH8)	
Bounded, small group (e.g., 4)	Hackman 2002, 1987; Wageman et al 2012	"If group members are to work interdependently on the task, it must be clear who is a member…and who is not" (H 1987: 336): Group size should be appropriate to the task: "large enough to do the work…but no more than that" (H 1987: 327).	Increase in group membership inhibits ensembling: "By adding player upon player…you eliminate the immediacy of the confrontation….thirty or sixty string players cannot react like four." (Blum 1986:164)	*Support:* 4 members specific to string quartets; informants report on ensemble in these conditions. *Though we have yet to learn about the limits of group size.*	16 PROBLEMATIC: "too many opinions"; "exponential change"; "Four times as bad!"; Keiko: "…with this piece, you are just 1/16th of the entire universe, basically. So what we … can offer is quite different." 4x4 POSSIBLE: Tony: "…the fact that it is four separate quartets… is what makes it	*Support with variation:* Increased size changes nature of member contribution, and 16 individuals might "break" ensemble; BUT possible to expand membership and support ensembling by combining bounded smaller groups. Group type matters as membership expands, need to	Bounded, small group (e.g. 4) → **(e.g., 16, if combination of sub-groups)**

					work. Because if you had 16 people who…had never played together before, it wouldn't work." And Ciaran: "…that's why it's good that it's four *quartets* playing together, because then hopefully they'll be more inclined to play together as one."	combine groups inclined to ensemble. (CH8)	
High degree of task interdependence	Wageman 1995; Hackman 2002; Murnighan and Conlon 1991	Essential feature for teams is a task requiring people to integrate their work and be collectively accountable (H 2002); "Highly interdependent groups…exhibit high-quality social processes, extensive mutual learning, and a sense of collective responsibility for performance outcomes"	"…the string quartet is based on the idea that each instrument (and musician) participates as an equal partner" (Blum 1986: 14); Jonathan: "We very much feel as though it's a *body* working together."; Paul: "…everything you do is contingent upon the conscious or unconscious, tacit or	*Support with variation*: Ensembling requires a level of interdependence that involves thinking, feeling, breathing, and acting together *as one body.*	Keiko: "This piece itself has a certain wave of notes and rhythm that is being passed around within the quartet, and then between four quartets… So it's more about, yeah, being in touch with everybody in the quartet, *and* everybody in this hall; Amy: …"it's like trying to be one	*Support variation introduced in Ch 5/6 & further variation*: a high degree of task interdependence can be experienced on multiple levels when ensembling: at the sub-group level and at the full group level, as dialogic relationality between four and as a unified expression (CH8)	High degree of task interdependence → **multiple interdependencies at group and sub-group levels ("as if one AND four")**

		(W 1995: 174); "String quartets are particularly intense work groups. Members are reciprocally interdependent (Thompson, 1967)" (M&C 1991:165)	implied acquiescence, agreement and resolution of your colleagues."		solid entity together, so that we can be in like a 'quartet of quartets.'"; Natalie: "whether your dueting with someone next to you, or as a whole quartet, or between four people in different [quartets], your ears are kind of everywhere."		
Shared cultural norms/ beliefs *[importantly different from group beliefs/shared purposes]*	Sawyer 2005; Hackman 1990; Levine & Moreland 1991; shared culture relevant to interactional synchrony	Groups benefit from common language and culture; it's critical to the introduction of new members: a group's culture embodies the task and social knowledge new members need to adopt (L&M 1991); "synchrony is much harder to attain if the participants are from different cultures" (S 2005: 52)	Lack of compatibility in terms of member approach to preparation or individual rhythm/style inhibits ensembling: Paul: "her bow speed would be wrong for the tempo we were playing at, for example. It was …slightly indicative of someone who hadn't absorbed internally the internal rhythm that was needed to construct the piece. I just couldn't	*Support*	Cathy: "we had an older quartet [in New York] who understood where we were coming from… and they were very easy to work with."; And "[The American quartets] were just a bit older and a bit more experienced, and a lot more serious, funnily enough. I think there's something lovely about the English	*Modest support:* This condition was not a central investigation or finding in the study, but Cathy's comparison suggests that shared cultural norms/beliefs may be more attributable to tenure balance across members than it is to shared national culture/norms. This relates to the need for compatibility in terms of	Shared cultural norms/beliefs → **compatibility of style, tenure, and professional standards relevant**

			[play with her]. It was like a lie.”		players here because …they're eccentric, they're fun, they're crazy. You know, this is their country; we do things a bit differently …But they lack the discipline.”	professionalism: preparation, “seriousness”, quality of listening. But all participants were *trained string musicians*. (CH8)	
Context support (sufficient resources, access to information, etc)	Edmondson 1999; Hackman 1987	Some degree of context support (e.g., sufficient time, people, materials) needed for work to proceed, other kinds of support, such as extrinsic reward systems, may be problematic.	Insufficient time together inhibits ensembling: Paul: “Until you [have a dual attention] you don’t even have the beginnings of an ensemble. And that takes time. There’s no quick way of doing that.”; Efficiency strategies, in terms of time use, also inhibit ensembling: Paul: “time became extremely precious. We’d arrange rehearsals, and they’d be at the beck and call of commercial	*Support concept of sufficient time allocated to a project; when members chose to use less time and work more efficiently, the quality of the work suffers.*	Jonathan: “[To reach ensemble, the process] would need better leadership.” Ed: “…we’ve had two *full days* of rehearsal, plus, you know, extra time stuff, which should be plenty of time…I just think it’s the way that we’ve been rehearsing …It’s possible to get relaxed rehearsals, but also get lots of work done. ”	*Modest support:* This condition was not a central investigation or finding in the study; Several beneficial features of context support were discussed, though without complete agreement. These include different perspectives on external leadership support and amount of/use of time. Use of time seems to be more important than amount of time allocated. (CH8)	*Evidence for variation inconclusive*

			fixers, so the rehearsals were never kept, and were forever being reallocated and shoved around. And then the quality of rehearsal went into something completely different…It had no integrity or interest to me.”				
Autonomy (self-led)	Hackman 1987, 2002; Wageman et al 2012; Muthusamy et al 2005; Gilboa and Tal-Shmotkin 2012 describe string quartets as examples of SMTs	Self-designed and self-led teams have the authority to design and manage their own conditions, work tasks and processes; “[SMTs] foster greater autonomy, increase communication among team members, and intensify their commitment to the team and the organization, which in turn enhances innovative behaviors” (M+	“I feel that a group in which one person determines how the others should play doesn’t sound the same as one in which every member is involved in the leadership and communicates musically on an equal basis” (Blum 1986: 8); Ivo: “The essence of quartet playing and the dichotomy, is that you have four individuals playing individual	*Support:* Autonomy must be experienced equally amongst members in order to enable the practice of collective leadership	*Role of external leader to facilitate important:* Fenella: “[the leader] create[s] some sort of structure, pulling things together when necessary, but you’re creating space for…everybody to feel that they could contribute. Which I thought was the ideal. It wasn’t, uh, chaotic at all….I think that the idea is that everybody really feels	*Support with variation:* In the context of a larger group, the relevance of an external leader who facilitates equal participation and preserves autonomy supports collective leadership/ ensembling; loss of autonomy and involvement in decision-making “breaks” ensemble (CH 8)	Autonomy (self-led) → **in larger “small” groups autonomy facilitated by an external leader**

		2005:53)	lines, and… you have to make it a unified whole, and you can't if anyone is subservient to anyone else. It has to be done as four equals."		like they're potentially a leader. That they are…absolutely equal."		
Clear, compelling goal	Hackman 1987, 2002; Sawyer 2007; Bennis and Biederman 1997	A task that is clear, challenging and consequential/meaningful motivates and energizes a team, and enables self-managed goal-directed work (H 2002).	Paul: …extraordinarily enough I suspect we may have been the first people in the UK to learn [the second Janacek quartet]… at the time it was a huge achievement. It's extremely complex. It actually raises very particular, almost impossible challenges of ensemble… And we did it; we did it extremely well. We played the socks off it (Austin and O'Donnell 2007:4).	*Support:* Particularly if the goal presents a challenge	Mid-process breakdown in clarity of goal: Ed: "I mean… where we are sitting now is really different from the score…I mean, we didn't really have a say in that." Drew: "It is one of *the* most important things, because it's part of the experience. " AND "It wasn't exactly communicated to us very clearly from the beginning to the end, or at point during the rehearsal process, why we were doing anything."	*Support with variation:* Participants anticipated the opportunity to realize aesthetic performance goals at Winchester, considering configuration critical to realizing Tavener's vision; when denied the chance, or even "a say" in the decision, they lost motivation and a sense of why they were "doing anything". Suggest that goal *can* change, but requires everyone have a "say" through equal participation (CH8)	Clear, compelling goal → **If goal changes mid-process, needs to emerge from group consensus**
Craft tool tenure,			New instruments	*New*: change in	Tony: "As we get	*Support new*	Craft tool tenure,

enduring – NEW (Ch 5)			/craft tools temporarily inhibits ensembling: Sara: "[using a new violin was] forcing me to explore, improve and refine so many aspects of my technique and musicianship"; it took two years to become "acquainted" with the new instrument	craft tools has similar impact to change in group membership: it takes "two years" to integrate; also changes (for better or worse) qualities of sound produced and dynamics of conversation	familiar with [the click-track], we can expand it." And "Also, [we're learning how to use] the click more as a guide. How to get used to playing with the click there, but not making it as a God, I mean, so you can play around."	*condition*: Introduction of technology as new craft tool temporarily inhibits ensembling: New tool takes time to master and integrate to enhance artistic virtuosity (and requires special responses – see Methods Table) (CH7)	enduring → **if new, takes time to master before special qualities can be integrated into artistry**

Table 9.B: Variation in conditions that support ensembling, elaborated with new data

In the above Table of Ensembling Conditions, I engage a structure somewhat different from the Table of Ensembling Methods, as findings from the study of ensembling in stretched conditions enable me to propose *an expanded range* of conditions in which ensembling appears to be possible, building on what we know from prior research and previous study of ensembling in natural conditions (again, Chapters 2 and 5 respectively). Therefore, the final column of the Table offers an extension to, rather than a modification of, the condition listed in the first column. Again, I suggest new contributions to our understanding in bold type, and note the chapter in which these conditions are discussed in greater detail, in the column that suggests extension or variation.

To summarize:

> In several cases, I am able to offer support for known conditions while providing ***a variation in the range*** of that condition.
>
> In terms of task design: tasks well matched to capabilities extend to include (preferably) tasks that challenge capabilities and that are designed to enable participants autonomy to demonstrate *special* capabilities; and a high degree of task interdependence is critical to ensembling, though ensembling suggests that tasks are designed to generate multiple interdependencies at both the full group and sub group levels.
>
> Related to conditions of distribution: when close physical proximity is not possible or preferred, such as when the larger group is constituted of subgroups, then balance needs to be achieved between proximity and distance to allow for groups to operate as multiple entities simultaneously (e.g., as four and one); configurational variability, whether a given condition of the task or a choice made by participants, is best achieved when participants can exercise autonomy in determining how they configure their work; the potential to perform synchronous work is critical, but can include support for an organic (non-technology mediated) approach or a technology-mediated approach; the potential to perform synchronous work also needs to include potential to do so in ways that increase relatedness between participants.
>
> In addition, I learned of variations possible in group constitution: while enduring group tenure is often preferred, ensembling is possible in larger groups of

limited tenure when they consist of subgroups that enjoy enduring tenure; in instances of subgroups, balance of tenure across these groups is beneficial; while increasing the group size from four to 16 individuals might have broken ensembling, the group can expand to include at least 16 members if those members are organized as subgroups.

The condition of autonomy is relevant across multiple dimensions of this table. The specific variation offered by data is that while string quartets prefer to work without the support of an external leader in natural conditions, when configured in a larger group of sub-groups, several of them considered it valuable to have their autonomy facilitated by an external leader. A clear, compelling goal is relevant to groups that ensemble as well as other high-performing groups, however, I extend this condition to include the awareness that if goals change mid-process, that change needs to emerge from a process of group consensus.

In some cases, I over ***new examples*** of conditions in which ensembling appears to be possible, where we (and often informants) did not expect it to be likely: when close physical proximity is not possible or preferred, groups benefit from the potential for episodes of close physical proximity; when distributed, the type of spatial distribution (e.g., horizontal or vertical) influences perceptions of proximity and relational qualities between subgroups; and the "tenure" of craft tools also has implications for ensembling, as changes in tools, such as new instruments or the introduction of technology, inhibits ensembling until those tools can be mastered and integrated into the work in ways that enhance artistry.

In two instances, I simply offer ***modest support*** for known conditions. Shared cultural norms/beliefs was not a central investigation or finding in the study, but data suggests that compatibility of style, tenure and professional standards are relevant to the work. Context support, as described by Hackman (1987) was somewhat relevant—particularly in terms of time as a resource for the work—but evidence for variation was inconclusive. This category may have been problematic because it was defined poorly in relation to this empirical setting: Organizational context variables described by Hackman (1987) and Edmonston (1999) such as reward systems, education systems and information systems have little bearing on

the work of string quartet musicians, as they are not operating within an organization.

To conclude this section, I remind the reader that the range I propose above is yet open to further investigation. I believe it will be possible to *further* expand the range of conditions conducive to ensembling, as participants did not appear to exceed the limits through this project (particularly in the absence of the anticipated Winchester stretch). Multiple studies of ensembling and collaborative creativity in diverse sets of conditions, and further degrees of "stretch", should offer many more insights into this range.

Some key learnings

Having already presented and summarized most of the new understanding I propose was generated in this study, I conclude by calling the reader's attention to a few key learnings I believe worth reflecting on, outside the context of Tables. These include the emergence of the practice of subliminal technology engagement, the critical role autonomy plays in processes of ensembling as demonstrated by this work, evidence of instability, and ways of thinking about the relationship between constraint and creativity suggested by participant actions and behaviors.

On Subliminal Technology Engagement

The use of the click-track presented big learning opportunity both for the musicians and for the benefits of this study. It is the condition that arguably most altered their beliefs regarding how ensemble is made possible, and presented the most compelling need for them to reconceive their practices and behaviors in order to pursue ensemble. Despite being initially characterized as "antithetical" to ensemble, the click-track, surprisingly, "made" ensemble possible when conditions necessitated a degree of artificial support for coordination. Ivo claimed that ensemble would have otherwise been impossible in stretched conditions: "If you don't have the click," he explained, "you're relying totally on what you hear. And in a big space what you hear is delayed." The click-track enabled the musicians to

realize the fundamental enactment of coordination, given stretched conditions. It also enabled them to hear one another better, so that group members could cultivate dialogue and work on achieving a better balance between voices. As Keiko reported, freed from the obligation to sustain the regular pulse, they could release tension and let the music "take over". That freedom enabled them to play. While preparing to play in multiple venues, Paul declared that efforts would have been "hopeless" without an external arbiter of the beat, simply in terms of establishing and sustaining coordination in varying configurations.

The click-track enabled coordination, and freed the musicians to play. But the click-track, as a condition, did not alone make ensemble possible; that hinged on how participants reconceived its role and developed their responses to it. They might have relied on the click-track to do the work of coordinating, and focused their efforts on demonstrating technical competence in playing precisely in time with the click-track. However, as I demonstrated in Chapter 7, these musicians aspired to demonstrate artistic virtuosity and to develop a higher degree of relationality in their work together. They wanted to explore the quality they believed intrinsic to the composition and the art of quartet playing, which one quartet described as the human condition of coming together across distance. This led them to incorporate their own method for feeling and embodying/internalizing the pulse, alongside the click-track. It told them where to meet in time, but not how to share that time together. To share time, they exercised breathing together and leading together as ways to increase their relatedness to one another, recovering autonomy. By treating the click-track as if it were an organically felt pulse, subliminal to the process, they were able to develop the conversationality and play critical to ensembling. Ensemble includes an experience of precise coordination along with dialogic relationality and play. While the click-track threatens to separate technical and musical activities initially—they have to spend some additional time on "getting right" with the click-track—participants used the click-track to re-integrate those activities.

Because of their shared purpose to ensemble, and to demonstrate artistic virtuosity rather than limit themselves to technical virtuosity, "electronic trust" emerged between US members working with the click-track. Even while they couldn't see or hear every other member in the larger group to know how they were working, they could trust that they were incorporating the click-track to achieve the group's goal. This trust developed on the basis of shared cultural norms and behaviors of string quartet musicians, and because they

were able to work in episodes of close physical proximity, to better hear what the other groups were doing and exercise their relatedness to one another in ways that became more difficult when stretched apart spatially. When distance intervened, they had developed capabilities to continue to behave as if one ensemble.

On Autonomy

During fieldwork and analysis, I saw several examples in which behaviors that increase autonomy supported ensembling. In Chapter 7, I showed that participants worked with the click-track in ways that increased their autonomy, rather than restricting it. Collective engagement and leadership is another way in which participants ensure that every member has the freedom to contribute to the emerging whole. Cathy was particularly effective as project leader in the US, creating space for equal contribution. US quartets consistently described participation as equal, and were surprised, given the limited time, that they could work so well without a dominant leader. US participants were also more experienced, enjoyed longer group tenure, and were better prepared, conditions that likely enhanced their ability to act autonomously. Both groups exercised autonomy in how they responded to the click-track: in the US they had autonomy to decide collectively whether or not to use it, in the UK they had the autonomy, in at least one concert, to explore the freedoms the click-track afforded them in designing the event to realize the composer's vision. As I learned from the comparison of the concerts at the Synagogue and Winchester, autonomy, and material/configurational flexibility, to realize the composer's vision to the best of their ability supported ensembling, whereas lack of autonomy broke it. By observing perceived success and failure, I learned that autonomy is a critical condition of healthy collective processes: when not allowed autonomy in adapting more efficiently and creatively to new conditions, motivation faltered, aspirations of ensembling dissipated, and innovation was put at stake.

On Instability

I also saw several examples in which behaviors that increase instability supported ensembling. This is consistent with Austin & Hjorth's argument (2012). Ensemble was more likely to emerge out of a struggle phase, in which many conflicting ideas were heard and

tried, until a solution emerged as "right". At this stage in the project's development, I can offer less support for methods such as destroying the music and intentionally injecting variation or instability. It may be that the last method was less relevant to the work, given that instability was generated by the new and dynamic conditions presented by the project and the introduction of technology. What participants did do was to figure out how to "live with" the instability of their variable conditions. They repeatedly responded to increases in constraint by reframing them as opportunities to exercise their technical and artistic competence.

On Constraints

Observing this work, I learned new ways of considering the relationship between constraints and creativity. Participants demonstrated a capacity for transforming seemingly "impossible" or threatening constraints into opportunities for enhanced outcomes. The difficulty of performing in a staircase in one venue became the optimal configuration for enhancing audience experience and increasing performer relatedness in another. The difficulty of an artificial pulse became a critical tool that enabled listening and afforded play at a distance. Rather than allowing constraints (such as the click-track, increased spatial distance, architectural barriers and other factors that inhibited collaborative communication) to deteriorate the work process into lesser forms of collaborative practice, participants reconceived those constraints (the click-track, a degree of distance, qualities of the space) as integral to the aesthetic form of what they were making together. The qualities of the space informed the qualities of their communication. A degree of distance became critical to the groups' ability to dialogue with one another; the struggle of communication became part of the aesthetic. The click-track came to aesthetically support Tavener's composition, acting as the "absolute inner pulse" which allowed for stillness. Participants also willingly took on additional constraints, when given the autonomy to do so in pursuit of realizing the composer's vision: at the Synagogue, they chose to play distributed in the staircase rather than in close and open range of viewing/hearing one another, to create a better listening experience for the audience. As they rejected "easier" solutions to coordinating their work, such as the dominant logics of a composer, metronome, or delegated leader, they increased the challenges in the work so that they demanded themselves to develop new capabilities and sustain dialogic relationality. The fact that they

were denied the chance to work beyond the boundaries of what they believed possible at Winchester was a major blow to their motivation and the degree of satisfaction they gained from the work.

IMPLICATIONS OF RESEARCH

With my multi-method approach to investigating the question "How do work groups ensemble?" I have endeavored to make a set of contributions to our evolving theoretical understanding of this complex phenomenon as a differentiated form of collaborative work. I believe these contributions have interesting implications for work practice and for future research as well, not only regarding processes of ensembling, but also regarding other forms of collaborative creativity. In this section, I present my theoretical contribution and make suggestions for how I believe this study can contribute helpfully to the practice of collaborative creativity. I discuss the limitations of this study in the next section, then build on contributions and limitations to make suggestions for future research.

Theoretical Contribution

Theoretical contributions include the following:

1. *Grounded theory development of a construct of ensemble: defined; supported.*

In Chapter 5, I developed a construct of ensemble by classifying a range of informant reports on ensemble into categories of experience, drawing on supporting evidence from other expert quartet musicians. I used theory to suggest an extension to the construct, regarding outcomes. I presented the construct as follows:

> *Ensemble is the (ecstatic) event in which a unitary force of expression emerges from synchronized, collectively led and highly attuned interaction between individuals aspiring towards a singular purpose. A common (but not necessary) consequence of ensemble is work that is perceived as unusual for its distinctive quality, value or power.*

While studying ensemble in stretched conditions, I found repeated instances in which participants used features of this construct to evaluate their progress, both in terms of qualities experienced as a part of and intrinsic to the process, and in terms of qualities evident in outcomes that were emerging. Extrinsic qualities included, for example, a "human struggle" to come together across a distance, playing "tight" together, an experience of equality between everyone in the room, feeling as if "time stopped all of a sudden", and the production of a unified/homogenous sound with "individual voices within it".

2. *Empirical identification and explanation of methods experts use to ensemble (and believe increase the likelihood of ensemble), including new methods such as a struggle phase and the practice of "subliminal technology engagement."*

I describe and provide evidence for these methods in **Table 9.A**, having demonstrated them in greater detail in Chapters 5-8. The table is constructed to review the progression from theoretical understanding to empirical development of these methods, and to point out the new learning that is part of my contribution.

3. *Empirical derivation of the (range of) conditions in which ensembling is more likely to occur, as well as those experts believe inhibit or break ensemble*

I describe and provide supporting evidence for these conditions in **Table 9.B.** This table is constructed to show the range of conditions within which ensembling is possible, insofar as we can know based on theoretical understanding and new learning from studying ensemble in stretched conditions. While I've offered extensions on several of the conditions in which ensembling is possible (including many instances of conditions which informants initially believed to be antithetical to ensembling), conditions are not conclusive, in terms of limits. There is evidence that processes of ensembling can sustain further range in constraint; participant expectations might be surprised further, in further stretches. I cannot provide many examples in which limits were exceeded, for example, in terms of group membership size or spatial distribution. This requires further study.

4. *Empirical demonstration that ensemble becomes possible when group members share a purpose to ensemble and have the autonomy to adapt their process of ensembling (made up of a variable set of methods) to address changing conditions.*

In this study, I demonstrated that a shared purpose to ensemble motivated efforts, and ensemble was used as an aesthetic criteria influencing decisions made along the way. I also showed how autonomy increased capabilities of participants to exceed expectations in their work together—taking on a challenging configuration by choice at Westminster Synagogue, to better realize their objectives—and how lack of autonomy caused efforts to break down.

5. *Grounded theory development of an explanation of how participant beliefs influence ensembling methods and the emergence of ensemble.*

In order to understand how participant beliefs influence ensembling, I explored two interpretations of the work process I observed, and generated two perspectives. First, I demonstrated how participant beliefs regarding which conditions, responses to conditions, and behaviors best support ensemble evolved based on an iterative process of exploration and discovery. Having evolved, they now included beliefs, for instance, that ensembling was possible in conditions of spatial distribution and in work involving the click-track. Alternatively, I also demonstrated how participant beliefs regarding what makes ensembling possible are influenced by the mid-process emergence of (sometimes unanticipated) qualities of ensemble.

6. *Empirical exploration of how experts reconceive constraints and behaviors to generate new potentialities for ensembling.*

To contribute to our emerging understanding of ensembling, I suggested a new method for interpretation: I used two methods of ensembling—openness to uncertainty and reconceiving—as frames for interpreting participant activities. Doing so, I generated insights into the ways in which participants relate to constraints and increase potentiality for newness and innovation in their work process. I also contributed to our understanding of the importance of autonomy, relatedness and demonstrations of competence in ensembling.

7. *Theoretically and empirically informed development of a construct and "framework" of ensembling, as well as processual descriptions of ensembling, aimed to increase our specificity in describing this special form of creative collaboration, and offering tools for future research.*

With my development of the construct and framework of ensembling, along with rich descriptions of the processes of ensembling, I describe a special form of group work, meeting the need for more precise distinctions between collaborative processes as performed in increasingly varied contexts. While I organize learning in the form of a construct and framework, I wish to also emphasize the processual approach I took to understanding how ensembling is enacted in the spaces between group participants. This approach allowed me to access insights into how participants related dynamically to one another and to the changing work conditions as well as their reconceptions of constraints and activities, and to understand multiple ways in which their beliefs regarding the potential for ensembling evolved. Doing so, I alternate between presentations of a seemingly "fixed" set of methods, and accounts of "continuously evolving human action" and change (Tsoukas and Chia 2002). Both strategies contribute to emerging understanding.

Contribution to Practice

In Chapter 7, I used data to demonstrate how participants expanded the range of potentialities in their work processes together by reconceiving constraints and behaviors. One way in which they did this was to call attention to latent movements in the work in order to bring those movements to the attention of group members for development. By developing more detailed descriptions of methods and processes for ensembling, I hope I have called attention to multiple possible movements, both evident and latent in the work of other kinds of creative groups, and that doing so brings those movements to the attention of those in positions to create the conditions for more of such activity to develop. I also hope that, by developing the concept of ensembling as a distinct process of collaborative creativity, I have provided more precise language, tools and understanding by which those organizing such processes can better structure, practice, and lead/manage the work. Ideally, working in this way increases group member autonomy, relatedness between members, and the potential for demonstrating competence beyond fundamentals; it also enhances

group performance and the special qualities of outcomes. Ensemble matters for innovation, as it serves as a tacit standard of excellence in high performing teams, increases team member motivation, and increases the likelihood of novel outcomes.

This study of ensembling has relevance for groups working across a range of conditions. It makes a specific contribution, for instance, to technology-mediated work in digitized and/or distributed collaborative work. The way in which participants engaged with the click-track suggests an important use for technology and important recommendations for management. Their work provides an example of how expert groups organize, without external leadership, to perform synchronized coordination in distributed conditions as a means for engaging in conversational creativity towards emergent outcomes. Participants did not use the click-track to enact routine or highly planned and controlled processes, nor did they allow it to operate as a dominant logic inhibiting their creativity. It did not provide the primary medium in which they worked, nor was it a primary focus of their work; it was, rather, auxiliary and subliminal to the focal activity of exercising artistic virtuosity to realize their shared purpose. The pulse organized the actions of the group in relation to one another, then over time became submerged as a subliminal heartbeat sustaining coordination while allowing for conversationality and play.

"Subliminal technology engagement" opens up new possibilities for considering how teams might engage with technology to address the important difficulty of coordination in ways that increase their autonomy, relatedness and ability to demonstrate creative competence, as well as increasing their likelihood of *innovating*. Many have suggested that technology might be central to new modes of production (Anderson 2010), but that is not what is suggested here. Here, technology, by fading into the background while remaining included in the work, enhances group experience. It is crucial, but not prominent, applied in a limited way, and with a light touch. As such, the subliminal technology approach might inspire ways for designing and using technology to organize distributed work that potentializes ensembling.

Advice for management suggested by this study include allowing the team to address the difficulty of coordination together without external direction or other efficient strategies so that they can increase their relatedness while developing their own particular rhythms for living in a shared space in time. Opening space in the work process for a "struggle" period to occur enables groups to enact the processes of discourse, divergence,

and debate that increase the quality of listening and relatedness, and increase the likelihood of sharing project leadership and engagement equally, in future stages of the work. When processes of coordinating work are technologically mediated, aside from considering a subliminal approach to technology, this study proposes engagement in parallel processes to increase relatedness. For instance, findings support the benefits of providing opportunities for episodes of close physical proximity, frequently advocated for fostering knowledge transfer and innovation in distributed conditions (Maznevski and Chudoba 2000, Knoben and Oerlemans 2006, Ocker et al 1998) during which groups can behave as if an ensemble, listening to one another and performing interactional synchrony without technological mediation. As a more unique contribution, this study shows the benefit to groups who are able to develop capabilities for performing interactional synchrony organically as well as feeling the pulse in relation to technology, so that they might experience enhanced relatedness and be able to lead *together* rather than wait for the impulse to be relayed through the communication channel.

Additional avenues for applying learning to practice include support for providing conditions in which ensembling can thrive, such as group member autonomy, and tasks designed to enable experts to exercise artistic virtuosity. Both conditions increase intrinsic motivation, and enable groups to build capability and adaptability simultaneously, increasing their innovation potential, rather than reinforcing organizational routines and reducing work to the level of technical proficiency (Edmondson et al 2001). Groups that ensemble are more motivated to rehearse discomfort and disruption than they are to reliably execute routines. Variability in work conditions can become a source of inspiration, and present groups with regular opportunities to inject instability into their work process and challenge their capabilities at or beyond the edge of what they know to be possible.

As a final example of how this study might be relevant to practice: it supports the practice of collective or shared leadership as performance-enhancing (Carson et al 2007, Katz and Kahn 1978, Klein et al 2006), and offers examples of how collective leadership can be practiced in a range of conditions. Informants assessed success based on a sense that everyone was "leading and not leading," and provided evidence that such self-organization is possible. Synthesizing new data with recent theory on collaboration-as-conversation (Austin and Hjorth 2012), I report how collective leadership supports the emergence of a balanced yet dynamic interaction between equal voices, ensuring that one logic does not

dominate and that the innovation-enhancing process of reconceiving is fueled with new ideas. Case informants demonstrate how collective leadership practices can be recovered, against the odds, in conditions of spatial distance and in relation to a coordinating technology, opening up the possibility for this phenomenon to be further studied and practiced in the new forms of self-organized teams that are emerging in the digital and global era (Wageman et al 2012).

LIMITATIONS

While I endeavored to generate as much learning as possible from this study of ensembling, there were more stories to tell, other observations and interpretations to be made, other methods for generating data, and other lenses through which to view the phenomenon. I discussed the limitations of my chosen research methods in Chapter 4. In this section, I discuss the limitations of my analytical process, those inherent in the case study itself, and the limits of transferability and generative potential that I anticipate. The best reason for discussing limitations is to remind the reader of the multiplicity of possible actions, interpretations and discoveries yet to be made.

Limitations of analysis

As one way to draw to the reader's attention the limitations of my interpretation of ensembling, I offer a story that emerged during the course of fieldwork as arguably the most important feature of the project's experience for Medici Quartet participants that has not been explored in my discussion so far: the story of healing relationships between members.

> *By the end of rehearsals at the Old Barn, July 3, I witness a surge of jovial interaction happening between the four members of the Medici Quartet. Jokes have been flying—the kind of jokes Cathy had felt missing in February, when I had asked her how the first two days of rehearsal had gone:*
>
> > *I was a bit worried at the beginning, because I think it was very hard for us as a quartet because we haven't played together, since Paul's been ill and Ivo's [living] in America, and we're with young quartets who are together. So there's*

a great sense of nostalgic looking back…It's so different being a string quartet, and we're not really doing it anymore. But we've still got the memory of it, so, we're playing with the memory, I think. But [the other quartets are] in "The Now", doing it…So I feel I'm sort of looking back on my past…It's lovely to play with Lew and Paul again, and we can get it back together, but it's, it's—you realize youth and age, it's all!—and maybe that's all wrapped up in the pieces, and—[She sighs.]

… I felt that we weren't connecting: us, our group. Because, you know, we hadn't been together. That's hard. So you realize what it was like to be a quartet...You look at it, and you think, "Ah." You know, it's difficult to get that back. You do get it back, but you know, [it takes] time, and we're missing the viola player. We think, "Oh, I wish Ivo was here." If only for the jokes, for the crack! [She laughs.] But you know what I mean, that's all part of it. You know, it's not just about the playing. It's about the personalities and the jokes, the in-jokes, the memories, what it triggers, and then the connection, the communication.

That connection appears to have flourished now. In one beautiful moment, Paul, Cathy, Ivo and Tony are all laughing deeply together and smiling over all their jokes. Paul's wife, Chika, who is sitting in to listen, is visibly moved to witness it.

Perhaps the biggest event of this project so far is the healing taking place between these four musicians. This healing is what Paul wanted to speak about when I went for dinner at his home Wednesday night. We sat together by his son Caspian's fish pond, watching the Koi weave between the lily pads, while Paul reminisced aloud, telling stories about Medici's past difficulties and how they were being reversed. Stories he repeated on the phone to his friend Peter Fenwick the next evening, and stories Chika wanted to talk to me about: Stories about the coming back together of Medici.

Paul remembered how angry Ivo had been with him, recalling a particular event in which Ivo had confronted Paul with a list of ten things he hated about him, reading it aloud to him over the phone, then reading it a second time to be sure he'd heard it. Paul was hurt that Ivo had never come to his house in the later years in which they had worked together. Tony, according to Paul, was always making Paul responsible for

solving his financial problems. Cathy never wanted to rehearse enough to meet Paul's expectations for rehearsal.[80]

Now, Paul was experiencing a reversal: Ivo had come to his house for these rehearsals. Paul had complemented Ivo as an "excellent decision-maker" in front of the larger group, to which Ivo had responded with what appeared to be a mix of shock and appreciation: "That's the best complement you've given me, Paul." Joking together, the cloud of past hurt that had hovered over them seemed to be lifting. Tony had actively sought funding to support this project, and took initiative in working with each of the event producers in advance of concerts to plan configurations and rehearsals. Cathy was rehearsing, coaching others in the UK, and leading rehearsals beautifully in the US in Paul's absence.

I reflect on the fact that Paul almost died this time last year, and is still recovering from his illness. That experience appears to have altered the way he works now on this project, as compared to how he's described his work with Medici in the past. He seems to be prioritizing relationships over rehearsals, making arrangements for and taking long breaks to have meals together, and creating space for others to take leadership. This project is opportunity to experience a reunion of Medici. I suspect the healing that seems to be happening between them may have the greatest significance to him, and be the larger motivation behind the work than I can tell by observing.

By telling this "back-stage" tale, information I learned over private, post-rehearsal conversations and from overheard phone calls, that sensitized me to certain observations in the work, I offer another look at what makes ensemble possible. There are layers to the process of coming together, beyond the rehearsal hours invested in playing precisely in time, and increasing relatedness. There is also the importance of joking together, of sharing a history of experiences, cultivating memories, savoring personalities, which serve as "triggers" to communication. There are the "scars" that a group accumulates over years of difficult relations, which Paul described make themselves evident in the quality of the music; those scars may also serve as rough surfaces on which to grip hold as group

[80] I summarize some key difficulties, as reported by Paul. Naturally, there are complex circumstances behind each of these points, and multiple perspectives to consider. I mean this only to represent Paul's report of prior relations between members.

members engage again and again in processes of conversing and collaborating. Dare I say it—near-death experiences, new awareness of one's mortality alters perception of time and how to use it and to what purpose: Do we spend every minute rehearsing, is that what it's about, or do we take time to linger over lunch and get to know one another better? I used participant reports and observation to build an interpretation of Paul's external leadership as unstable, therefore problematic. Perhaps it was exactly what it needed to be, to fulfill other purposes, serve other meanings. Perhaps more important than a shared purpose to realize the composer's vision or demonstrate artistic virtuosity for ensembling, members can be motivated to recover from past regrets, try again to be understood by close colleagues, to enjoy a new piece of music, or to heal.

I offer this example, these reflections, in order to open up the space for critique, for the missing voices or pieces of the study to come to the fore and say, "I am also here!" To show, I, as researcher, am also somewhat aware of what I am doing by choosing to tell some stories and not others. Most importantly, to invite many stories to live side-by-side, co-occurring in this complex process of working with others with the degree of intensity that ensembling requires. I believe the version of the story I told in Chapter 6. I believe the version in Chapter 7. I believe this story of healing. I believe there are also other versions which I may (or may not) recognize as familiar, welcome, and suggest are as relevant as these. I am studying collaborative creativity. While I collaborate daily with informants, supervisors, readers, materials, I have done a significant amount of work generating these arguments alone. Those are part of my task constraints, as a doctoral student. Even doing so, I know how much greater the outcome can be—more than the sum of parts—when inviting others to join, and opening the self to multiple perspectives. I cannot tell a tale of ensemble and ignore these basic tenants of the practice. So, here, I open. And I give some little prompts to invite further opening, and hopefully, company from others in future study.

In this study of ensembling, I made the decision to try to address as many facets of the phenomenon as I could reasonably do within the allotted constraints of time, access to data, and the amount of plot material I could manage to organize and write. By taking a broad approach to addressing a full set of methods and conditions, for instance, I left some arguments less well studied and explored in the data. These things need a deeper look. They include, for instance, the alternative motivations potentially at play that the story of Medici's "healing" brings to the forefront. The story of external leadership was complicated

and underserved in my analysis. I am not convinced I sufficiently understood what really caused the conflict in the UK: Was Paul's illness restricting him from performing as the kind of leader Q4 wanted? Or were Q4's own difficulties with forming as a group, which may have included things that happened "off camera" and outside the scope of my observation, causing them strife that increased their need for external mediation or coaching? I already pointed out that this quartet was experiencing its own difficulties and decisions. A closer study of the role of the external leader needs to take into account more than the leader's behaviors or the conditions of the work. Group member tenure, preparation and other behaviors most likely interacted to cause this particular problem.

I have also underserved the practice of shared or collective leadership with this study. I have addressed collective leadership broadly as an activity, involving some leads that are necessary for getting timing right and therefore that need to be fairly consistent performance to performance, and leads that are more spontaneous and variable. Ideally, the process of leading collectively would be analyzed at the level of types of "leads." To the degree that types of leads can be visibly discerned by observation, this analysis may still be possible, as all rehearsals were videotaped. However, the extent to which that is possible is suspect for the same reason that internal shifts based on listening escape observation. As Fenella suggested, a fine line exists between "leadership" and actions taken for collaborative purposes. Such a classification scheme might need to include the musicians as co-producers of its development, at least at the level of member-checks. It may also oversimplify a complex phenomenon to classify leads by type. It may be leadership acts are better called something else than "leadership" entirely. This kind of focused analysis would need to be carefully designed, ideally before data was collected.

Limitations of the case study

The boundaries of the project I studied present certain limitations to what understanding I could generate. I was fortunate to follow the group's development of this project across three key phases, in two countries, leading up to the premiere performances in the US and UK, and I was fortunate that ensembling mattered to them during the course of this work. However, just because participants delivered concerts to meet their scheduled deadlines does not mean their process of working on the piece was "finished". While they delivered

performances that generally satisfied audiences, producers, critics and, in many cases, themselves, they weren't yet working on *Towards Silence* at the level of familiarity at which quartets achieve "second innocence", as Robertson described to be the regular ambition of the Medici Quartet (Austin & O'Donnell 2007: 7). They were also just beginning to develop capabilities for ensembling as a larger group, and were given little time (a matter of days) to do so. Given that group tenure matters to ensembling, and informants generally suggested that it takes two years of full-time work to integrate a new member into the group, their ways of working together should look quite different had they had the time and resources to invest two years (or 13, or 35 years) of full-time work together. This study can teach us something about how members/groups come together and *begin* the process of building capabilities for ensembling, but less about how those methods would look when performed by a large group with enduring tenure.

As a related condition that limits the study in ways that I do not regret, but of which I remind us to be aware, this project involved mostly early-career or newly forming quartets as participants. Robertson made this choice deliberately; he argued that working with four fully established quartets would bring too many egos into the room to enable effective ensembling. What would this process have looked like with four Medici-level quartets? We learned by comparing the US and UK phases of the project that the US work process benefitted from those participants' longer tenure as groups and higher levels of preparation and focus, which indicates that even higher degrees of enduring tenure and experience might add increased benefit to the process of ensembling. It's another "stretch" that could be tried, which might again teach us something about the limits.

As a final example of the limitations inherent in the case, the project wasn't designed to test maximum constraints in service to my "stretch" study. While the Winchester event promised to be an opportunity to observe ensembling performed outside the range of aural and visual communication, it didn't happen. The participants and we have yet to experience and learn from that "ultimate challenge." As this wasn't a controlled experiment, I couldn't add extra people to find a breaking point in terms of group size, or modify constraints. I worked with the constraints that emerged through this particular process to generate data. As a result, I can't describe maximum constraints in terms of group number, spatial distance, and ability to see and hear other members. That understanding needs to be developed in future research. The maximum stretch applies to participants as well: given

the time-limited nature of this project, we can learn from observing how the musicians used technology to make "music"—to demonstrate artistic virtuosity to some degree. But they and we haven't yet had the opportunity to learn how far they can go in meeting technology with artistic virtuosity to make "excellent" music, or music that exceeds their current expectations for their work.

Limitations of transferability

I have conducted an in depth study of ensembling using data generated in specific response to a case of musical performance—even more specialized, string quartet performance. While I believe many of these findings are transferable to other contexts in which collaborative creativity is performed by groups, I also believe it important to be aware, as the construct of ensemble and ensembling, the methods, and the relationships between methods and conditions I propose are to some degree specific to the case I studied, and more generally the work of string quartet musicians. Therefore, it's critical to consider that locating my study of ensembling in this field may have led me to generate too narrow a description of ensembling and it's parts. It may be that the constructs need to be relaxed somewhat to include activities that are also examples of ensembling. Some of the methods I propose, and their relationship to conditions, may have more range of playability than I suggest here. "Struggle" phases will have other names and manifestations. The performance of collective leadership may appear differently. Relatedness between group members will be intensified through different means, perhaps towards different ends. Whole methods may need to be dropped from the framework as too specific to string quartets to enable transferability, or at least reframed to allow for inclusion.

While I've warned about the possible limitations that studying string quartets puts on our understanding of ensembling, it's alternatively important to also point out that there were features of this particular project that were unique to the working conditions of quartets, and of performing arts more generally. I rooted my study of ensembling in stretched conditions in a comparison with ensembling in natural conditions. Still, some of the revisions to understanding I propose may appear odd to quartet musicians. Spatially distributed conditions are not common to the performing arts (with rare exceptions, such as site-specific performances which require mobile audiences); music, theatre and dance

ensembles typically perform together on one stage or in one shared and bounded space, visible to one audience. While spatial distribution, to some degree (if not *global* distribution), is default in business and service organizations. The same is true for the condition of organizing group work in relation to a mediating technology. The conditions in which this musical project was executed appear in some ways much more like business conditions than like art conditions. The more extreme the conditions become for musicians, the more familiar those conditions may appear to groups working in other organizations, for whom spatial distribution, frustration with technological rigidities, and difficulties hearing everyone are routine conditions of work. In other words, the more awkward it becomes for the musicians to navigate these stretches in conditions, the more access we get to a realistic image of something like organizational life in other fields.

FUTURE RESEARCH

I imagine this study as a step towards a larger, multi-case exploration of ensemble and processes of ensembling, in diverse contexts. Data for this study has been generated primarily (not exclusively) from one case study, but contributions suggest broader implications for how ensembling, and other forms of collaborative creativity, can be studied. I chose to study ensembling in stretched conditions as opposed to in its natural habitat with the idea that studying this phenomenon under duress might teach us something new about it, in terms of its endurance, stamina, critical features and conditions for success, and limitations. But I also did so with the anticipation that studying ensembling in stretched conditions better prepares us to embark on a multi-case study of ensembling including examples of collaborative creativity in a broader range of conditions. While the conditions of the *Towards Silence* project don't offer a perfect parallel to the work of groups in distributed business settings, stretching affords us the opportunity to consider how ensemble might look in other settings, and how groups might work to achieve and be capable of achieving a quality of ensemble when collaborating in conditions we might otherwise assume to be beyond tolerance. As mentioned in the prior section, the conditions in which ensembling is performed in the *Towards Silence* project are less familiar to performing arts groups and more familiar to groups in other kinds of organizational settings: e.g., conditions of a larger group size, greater spatial distance and distribution, coordinating technology, and difficulty with hearing and seeing fellow team members.

Project participants are able to recognize ensembling despite being in less familiar territory; we might take a cue from them, and look to recognize ensemble in other territories than those we expect.

In this section, I propose, based on the implications of this study, directions for further study of ensembling and other forms of collaborative creativity in co-located, distributed and technology-mediated conditions. I also suggest what I think should be the next steps for developing a complex and differentiated understanding of ensemble and ensembling, outlining some proposals and questions to guide future research.

Implications for how we study collaborative creativity in co-located conditions

While I believe I have made an important contribution to our emerging understanding of ensembling, I believe that understanding still to be nascent, and my description to be an imperfect one. I propose this description in order to open the conversation to multiple interpretations and to invite further investigation. Because I engaged a multi-method approach and developed multiple interpretations of this complex phenomenon, I believe both the form and content of this study has implications for future research. I increased our understanding of the methods and processes by which expert groups ensemble. I demonstrated methods (e.g., iteration-based analysis, ensembling methods as frames, plotting the field) for generating rich descriptions of collaborative work that address the dynamic interplay between methods, conditions and group beliefs. And I provided tools, in the form of constructs, a framework, and tables of data, for use in future elaboration of ensembling and application in other contexts.

As I argued in the opening of this thesis, researchers interested in the study of collaborative groups and group creativity need more precise and differentiated descriptions of the different forms of collaboration happening in increasingly complex and varied conditions. I suggest, by example, that such investigation be grounded in close observation of the work of creative groups. Wageman et al (2012) tell us that globalization and digitization of work means that distributed teams are emerging in a multiplicity of forms. These forms need to be addressed in thick description, to help us build new theory for understanding how to organize effective teams for the future, given diversity in conditions

and purpose. To address this need, I offer rich description of one "extreme" form of collaborative group work: ensembling, as performed by expert teams.

The next natural "stretch" may be to walk these ideas into other fields of co-located work practice, to see how these methods appear when performed by groups engaged, for instance, in product, process or service design; software development; creative industries such as film, animation, fashion, and architecture; or groups working primarily with "thought-stuff" such as strategy teams within organizations or networks. Researchers have already paved the way for these connections: Austin and Devin (2003) compared the work of theatre ensembles to that of agile software development teams. Austin and Hjorth (2012) developed their ideas of ensembling in the context of a strategy and graphic design firm. Devin and Austin (2012) and O'Donnell and Devin (2012) have discovered similarities between the practices of groups that ensemble to work groups engaged in multiple industries, including airplane manufacturing and high-end home product development. Zuzul and Edmondson (2011) investigated how entrepreneurs in the sustainable cities industry engage in collective processes of strategy making in groups that appear, by their practices, to ensemble. "High-learning" surgical teams perform iterative, coordinated work, if at a slower "pulse" than string quartets, that involves continually reflecting on and responding to new information (Edmondson et al 2001). They and similar live performing teams (Hackman 1987, 2002) are natural candidates for the study of ensemble.

Implications for how we study work in distributed conditions*.*

While there is yet more to be understood about ensembling by studying diverse groups in co-located conditions similar to the "natural" conditions in which string quartets usually work, I intend this investigation into ensembling in stretched conditions to simultaneously pave the way for studies of ensembling at greater stretches. Such stretches might include further increase in spatial distance between groups or group members, to the point of geographically distributed groups. Spatial distribution is likely accompanied by other stretches in "proximity" such as cultural proximity, social proximity, organizational proximity, configurational proximity, and perceptions of proximity (Knoben and Oerlemans 2006, O'Leary et al 2007, Wilson et al 2008), all of which may differently challenge processes of ensembling, and cause new practices or variations on known practices to

emerge, or teach us more about the breaking points of ensemble. As Wageman et al (2012) suggest, teams of diverse variety are springing up to engage in new forms or work together based on the opportunities afforded by technologies for organizing across distance. Virtual spaces, in which non-co-located groups can work together in synchronous, real time while sharing a common "space" with some degree of shared tacit experience may offer particularly relevant opportunities for ensemble to emerge.

Studying ensembling at greater stretches affords at least two kinds of learning. First, we stand to gain better understanding of the relationship between work conditions and methods of ensembling, including how methods or constraints become reconceived in light of changes in work conditions, to extend what we know about ensembling in general. Second, we stand to gain increased opportunities for understanding and imagining how ensembling can be performed outside the constraints we usually assign to it: i.e., co-located, synchronized, live performing teams. The investigation of ensemble in distributed conditions can be fruitful even if ensemble fails to appear. As we approach the points in which conditions stretch beyond what methods can bear and ensemble becomes no longer possible, alternative—"lesser," if you will—forms of collaboration emerge to be more clearly described. I faced the real possibility in my study that project participants would fail to realize or experience ensemble, or determine that ensemble was not an appropriate objective given conditions. Regardless of their experience of ensemble, participants made *other kinds of work practices* possible in stretched conditions: they demonstrated how collective leadership can be enacted across distance and despite technological constraint, they organized as a larger group with limited tenure and developed a high degree of relatedness in a short amount of time, they developed a "subliminal" approach to working with routinizing technology, and they did all of this without a dominant organizing leader. All of these practices, whether in the context of "ensembling" or not, offer learning relevant to other forms of collaborative group work. Just as ensemble is in want of deeper understanding, so are the multiple forms of group work generally classified as "collaboration." Along the way, such research, if rooted in close observation of work processes and rich description, stands to contribute a wealth of understanding about how groups perform (and might perform) collaborative creativity.

The study of groups that ensemble, or engage in processes similar to ensembling, might also help us investigate ways in which work in distributed conditions can become

more innovative. Orlikowski (2002) describes the need for deep competence in "distributed organizing", which she describes as "the capability of operating effectively across the temporal, geographic, political, and cultural boundaries routinely encountered in global operations" (249). The expert participants in this study demonstrated processes for developing and deepening competence in (a) organizing in new configurations as a larger team, and (b) organizing in semi-distributed and variable conditions. Given that participants were highly motivated to engage in activities that increased their autonomy, relatedness and opportunity to demonstrate artistic competence, it may be that deep competence in ensembling prepares groups to perform distributed organizing in unexpected ways, generating new potentialities for what can be made in those conditions. The challenges of distributed organizing may even incite ensembling; participants were energized when they could demonstrate competence and quickly organizing in new configurations to create a better performance experience at the Synagogue, and were equally discouraged when they lost the opportunity to take on a greater challenge in organizing at Winchester Cathedral. Groups that ensemble seek work beyond the edge. I suggest it's worth investigating to what degree that "edge" can be provided in the form of distributed (and variable) conditions.

Implications for how we study technology-mediated work

Participant response to the adoption of a simple coordinating technology, and their development of a subliminal approach to working with that technology, propose implications this research has for further study of technology-mediated creative group work. Little research has yet been done in organizational studies to understand collaborative work in synthetic environments. Orlikowski (2010) calls for research that increases our understanding of how technology, such as the click-track, as a material artifact configures (or "influences") work team interactions and with what results. She suggests we use an emergent process approach, in which we compare group work practices in and out of the synthetic environment "in an attempt to identify whether and how existing or new structures for distributed collaboration are enacted by team members in the synthetic world, and with what individual, team and organizational consequences over time" (2010: 132). While I did not address these questions in my research, this study offers itself as an example of what a reply to Orlikowski might look like. The click-track influenced

interactions, but participants also demonstrated ways in which they opened up the possibility for performing *other, preferred interactions* that better served their objectives by sublimating the click-track to their processes, responding to it in ways that increased their experience of autonomy, their relatedness to one another, and enabled them to demonstrate artistic virtuosity. This study also demonstrates how new processes and practices emerged in relation to changing conditions, demonstrating benefits of Orlikowski's recommendation to increase learning by comparing practices in "natural habitat" as well as in stretched or synthetic environments.

Another space is opening up in which we might explore the occurrence of ensembling. 3-D technologies are creating new "trading zones", or shared virtual spaces that support synchronous communication and enable real-time knowledge sharing and the iterative development of ideas across group members or between partnering groups. Such technology supports methods of ensembling, even at a distance; it invites collaborators to share ideas in more "fluid" or unresolved states, opening themselves to the work of others, and reconceiving in response to new input on a regular basis. Boland et al (2007) demonstrate how such interactions cause "wakes of innovation" to ripple out across multiple communities of practice, when partners can collectively generate knowledge in a shared digital space.

Refining our understanding of ensemble and ensembling

I return to the core question at the heart of this study: How do work groups ensemble? While I have endeavored to generate a deep and multi-faceted understanding of ensembling in response to this question, that understanding is yet nascent. Ensembling, as a complex phenomenon, should be exposed to multiple perspectives that acknowledge complexity, rather than constrain further learning. Many questions persist, the most interesting of those yet to be invented by others. Here are some of mine:

- Since participants never got to experience performing out of range of sight and hearing at Winchester Cathedral, what happens to ensembling when group members perform in conditions of spatial distance that go beyond this range?

- Is ensembling happening in other contexts? What does it look like? How far outside the work of arts ensembles can we venture before we become convinced that what we are seeing is not ensembling?

- Can features of ensembling be helpfully engaged to enhance processes of collective creativity that may fall outside of "ensembling" (or the conditions in which ensembling is possible) as we know it now? What do collaborations look like that involve some, but not all, of the methods of ensembling?

- What kinds of leadership activities are involved in the performance of collective leadership? Are we satisfied to call this activity "leadership" or is it better served by other description?

- In the case of the loss of autonomy at Winchester Cathedral, members of Q4 gave in to the dominant logic of technology, allowing themselves to be led by their first violinist, while giving up their shared engagement in leadership and project responsibility. Aside from loss of autonomy, what other shifts in conditions or behaviors cause participants normally motivated to ensemble to lower their expectations? As members lower expectations, what does the collaborative process look like?

Beyond the many questions I might generate at this point, a critical next step for developing the construct of ensemble and ensembling is to differentiate it more distinctly from other forms of group creativity, primarily those that emphasize improvisation and root their investigations in the work of the practices of improvisational jazz performers and theatre groups (Sawyer 2003, 2007; Barrett 1998, Hatch 1999). Specificity in our understanding of the subtle or not subtle variations between these forms, as well as multiple other forms, can be explored through strategies that argue for similarity and difference. If researchers wish to expose similarity between ensembling and highly improvisational forms of group creativity, then the methods of ensembling I have described in detail can be used to extend what we know about practices such as deep listening (Sawyer 2003) and coordinating via interactional synchrony (Sawyer 2005, Barrett 1998). Such comparison should expose nuanced variations in how these practices are enacted in

different contexts, different aesthetic worlds, and for different purposes: combining and varying subroutines to construct new performances, or achieving familiarity with a commanding form (i.e., a score or script) in order to develop that form. Groups that improvise and groups that ensemble both demonstrate deliberate efforts to interrupt habitual patterns, a feature of the work Barrett calls "provocative competence" (1998: 607). Ensembling methods such as injecting disruptive variation and destroying the music (or commanding form) could be considered as variations on the practices Barrett (1998) describes such as limiting rehearsal to reduce familiarity with new material or exploring work beyond the limits of current knowledge. In this way, we increase the range of examples of relatively known practices, perhaps expanding their possible forms and applications.

While I can see fruitful possibilities by considering ensembling as a way to extend our knowledge about the kinds of activities creative groups engage in more generally, I also see problems in this comparison, which suggest it may be more beneficial to clarify difference. It's problematic to equate ensembling with improvisation. Ensembling, as I have presented it here, describes a dynamic process involving an interdependent set of methods by which more or less stable groups increase their capabilities for addressing a variety of commanding forms to generate novelty. Improvisation describes an activity occurring within the context of other kinds of activity, an element of the work; indeed, while I haven't addressed it explicitly in this study (perhaps a failure on my part[81]), improvisation is an element of the work of ensembling. Improvisation is one way of generating a performance or making a form collaboratively. Work can be more or less improvisational, and more or less structured, depending on how group members relate to form and structure. It would be more appropriate to compare ensembling to Sawyer's concept of group creativity, which includes improvisation as a central feature, and which is realized in the form of a collective experience of flow (2003).

Still, I maintain that variations matter, and urge they be explored further before conclusions are drawn. I have proposed ensemble is a different kind of peak performance experience than jamming or flow, because informants say it is. Because they conjure it virtually in a different way, and the variation in their aspiration lead, I believe, to variation

[81] These particular informants happened not to emphasize improvisation during this work process, though it is a familiar concept to them.

in methods. I suggest these variations matter enough to warrant investigation of ensemble as a different kind of phenomenon. Another reason: experts tell us they are different. I know from experience that performing artists who ensemble on the basis of a fixed score or script believe they are doing something very different and at a different level of competence from what improvisational groups are doing; I suspect the opposite is true as well. Because it appears similar to those of us outside these practices is not sufficient reason to assume similarity. Rather, through intensive investigation of the forms of group creativity, we should be able to build more precise understanding, whether it exposes support for either argument of significant enough similarity to dissuade the development of multiple constructs, or significant difference to encourage further multiplicity.

It may be in the practice of transferring learning to studies of creative groups in other contexts that we learn more about the differences or similarities between what are now phenomena primarily understood in the context of performing arts. Since learning from improvisational processes is often exported into other contexts, whether used somewhat literally to make recommendations to management (Barrett 1998) or considered metaphorically to inform processes of organizing (Hatch 1999), here is an example of how I anticipate transferability will elucidate differences between improvisation and ensembling. "Brainstorming" is a classic example of an organizational activity people consider to be improvisational. It calls upon groups of people to open to the contribution of others, listen, generate new ideas that either build on or disrupt the ideas of others. But brainstorming as a form for generating novelty has limitations. Sawyer (2007) warns that brainstorming is only valuable based on the group's ability to evaluate ideas and make a selection, and then to elaborate on the idea. Quantity of ideas does not ensure quality of those ideas, or that groups know how to successfully develop and implement those ideas. Based on his study of innovation in design firms, Verganti (2009) critiques the exercise as less conducive to innovation than the research-based process of "interpreting" that enables firms to generate what Verganti considers "radical innovations of meanings" and to develop unique (i.e., unanticipated and new) proposals of value to customers. Design firms interact with a select set of expert "interpreters" (forward-thinking researchers who develop unique visions about how people might live better in the future). The firm then "recombines and integrates this knowledge with their own proprietary insights, technologies, and assets" a process that "reflects the profound and precise dynamics of research rather than the speed of brainstorming. It implies sharing knowledge through exploratory experiments rather than

extemporaneous creativity." (Verganti 2009: 13). Ensembling arguably offers a stronger parallel to this kind of organizational activity: Participants in my study practice extreme forms of preparation, similar to research. They engage in interpreting the commanding form, a unique vision put forth by the composer. Firms that recombine and integrate new learning with their own insights and strengths practice reconceiving.

Regardless of whether we study ensembling or group creativity that features improvisation more prominently, or other forms of collaborative creativity altogether, we need to better understand boundary conditions of these phenomenon. I have gotten a start on that work with this study of ensembling in stretched conditions, and suggested (as summarized in **Table 9.B**) an expansion of the range of conditions which can become conducive to ensembling. I have demonstrated that expert groups are capable of adapting their methods to conditions in sometimes surprising ways that support the emergence of ensemble. While the "stretch" presented by the primary case enabled me to generate some learning about the limits of conditions for ensembling, findings indicate that the process may yet be able to tolerate further stretches. Ensembling didn't break at a group size of 16 (or rather, at the size of four groups of four), with limited tenure, at distances beyond the range of hearing, or with the influence of a mediating technology that threatened to become a stabilizing and dominant, therefore restrictive, logic. Just as participants were able to reconceive constraints to create new possibilities for ensembling in this example, I expect we will see expert groups in other contexts invent similarly surprising strategies for ensembling in conditions that we may expect to break ensemble.

CONCLUSION

With this study, I hope I have increased our precision as social scientists with the idea of ensemble, and contributed to our understanding of the process of ensembling as a distinct form of collaborative creativity. I hope I did so in a way that opens the door for many new movements of ensembling to be brought to light, and for ensembling to be discovered and better understood in contexts outside the usual places we expect it to occur. I hope as well that this study provides an example of ways in which other researchers can productively take up the investigation of alternative forms of collaboration, developing precise descriptions and multi-layered interpretations of those particular processes based on close

observation and rich description. If enough interested souls are mobilized to study collaborative creativity, we may be able to catch up with the multiple forms of this practice emerging in an increasingly digitized and distributed world community. The musicians will probably be ahead of us in their exploration of such conditions and practices. Hopefully this is so; they are valuable co-producers of knowledge, and oh so pleasant to listen to at work.

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