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Storming and forming: A case study of education policy implementation

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Storming and Forming A Case Study of Education Policy Implementation

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Storming and Forming

A Case Study of Education Policy Implementation

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Abstract

Implementing education policy is as important as the design of the policy itself when it comes to improving education systems. This study analyzes education policy implementation using the case study of a new law's implementation in Serbia and a framework of key implementation determinants. We use a mixed-method approach to test whether all of the dimensions identified in the framework are necessary for implementation progress, and find that the content dimension is a barrier, context and capacity are unclear, and commitment and clients—actors' engagement—are supporting dimensions. Therefore, it is not necessary for implementation progress that every dimension and determinant be a supporting factor. We develop potential explanations for how determinants may relate to implementation progress, and identify pathways for future research.

Keywords

Implementation, education policy implementation, vocational education and training, education systems

Storming and Forming

A Case Study of Education Policy Implementation

1. Introduction

The science of education policy has moved forward dramatically in recent years, to the point that there are interventions and best practices with demonstrated causal impact in policy arenas as diverse as pre-primary education (Berlinski, Galiani, & Gertler, 2009) to teacher training (Harris & Sass, 2011) and education governance (Papanastasiou, 2019). Research continues to demonstrate the value of innovative programs and strategies, and impact-oriented politicians are converting findings into policy (Glewwe & Muralidharan, 2016). One of the next challenges for education policy is helping governments and education leaders implement policies such that their goals translate into action (Khan, 2016).

Currently, a large number of jurisdictions are engaged in implementing new or changed vocational education and training (VET) policies. Although VET is a special case of education policy, VET is the majority program at the upper-secondary level in numerous countries' education systems¹. Implementation is particularly challenging in this field given the limited research on VET reform implementation (Holmes, 2009; Fluitman, 1999) compared to the more extensive evidence supporting reform design (i.e. Wolter & Ryan, 2011; Dorleans et al., 2011). At the same time, developing theory and evidence on implementing VET reforms can apply to implementation efforts in other fields of education policy.

This study applies a recently developed framework of key enablers and barriers for reform implementation in VET (Caves, Baumann, & Renold, 2019). We use the framework to explore why some efforts at implementation make progress from goals to action while others do not. We use document analysis, field study, and a dataset of stakeholder interviews to analyze the implementation of a law in Serbia. We specifically investigate whether each dimension of the framework is necessary for implementation progress. We make three main contributions to the literature 1) we begin to quantify implementation factors, 2) we confirm that it is not necessary for implementation progress that all dimensions and key determinants are supporting factors, and 3) we consider the implications of our findings for education policy implementation in general.

2. Theory

The evolution of policy implementation research is typically described in three generations (Pülzl & Treib, 2017; Goggin, Bowman, Lester, & O'Toole, 1990). First, in the 1970s, came case studies of specific policy implementation processes that identified individual variables (i.e. Pressman & Wildavsky, 1973; Jeffrey, 1978). Second, through the 1980s, came a wave of discourse on top-down compared to bottom-up implementation, as well as the first analytical frameworks for implementation (i.e. Mazmanian & Sabatier, 1983).

The third and ongoing generation of implementation research has focused on developing theoretical frameworks that can be operationalized, tested, and applied across policy fields (Nilsen, 2015). Najam's (1995) 5C Protocol, based on his review of the implementation literature to date, is one of the most well known of those frameworks. The 5C Protocol continues to be applied to policy implementation in areas as diverse as tobacco control (Martin & de Leeuw, 2013), pollution prevention (Bayrakal, 2006), maternal and infant mortality (Nurani, Mardiyono, Supriyono, & Wijaya, 2018), and education policy (Hausiku, 2017). Its

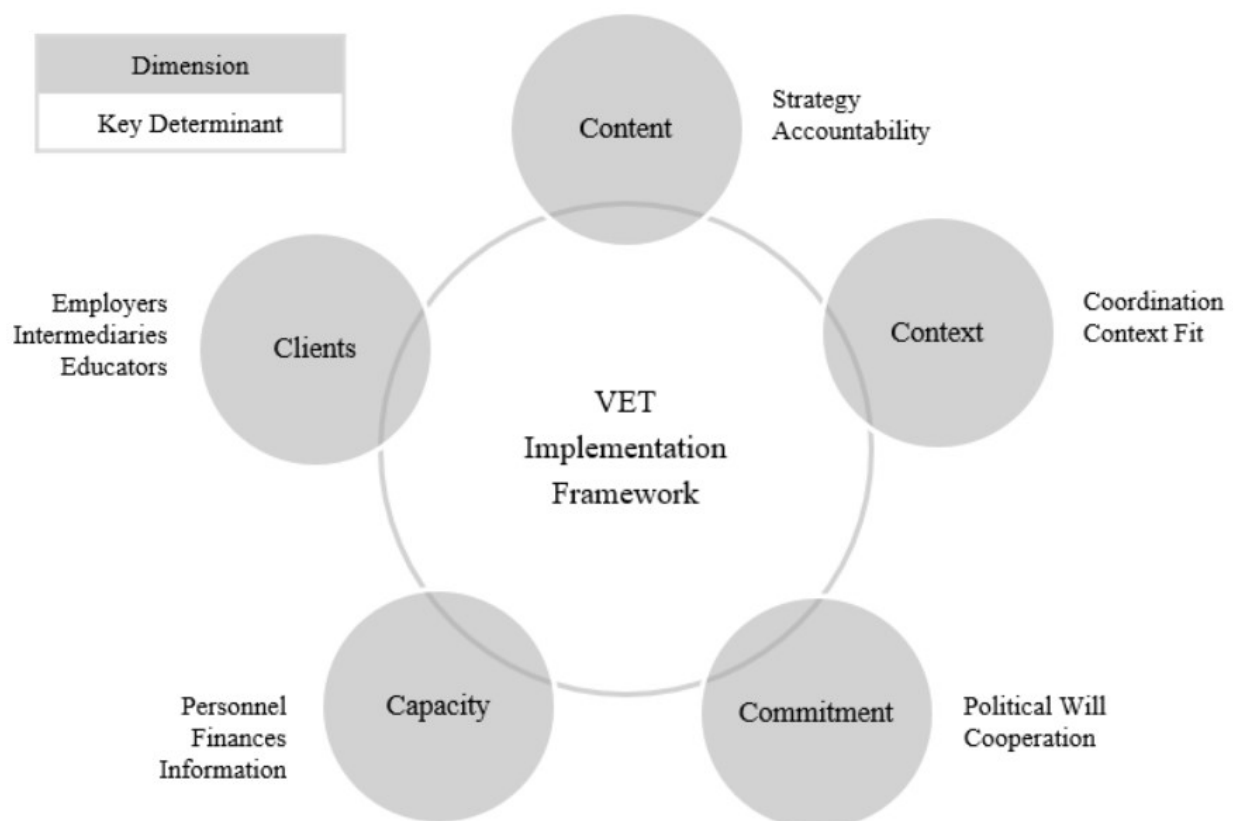
¹ https://stats.oecd.org/Index.aspx?DataSetCode=EAG_ENRL_SHARE_INST

dimensions cover the content, context, commitments, capacity, and clients factors affecting implementation (Najam, 1995). We describe each dimension in more detail following Figure 1.

A recent literature review on the implementation of VET reforms (Caves et al., 2019) developed a framework based on Najam's (1995) 5C Protocol. The review populated each dimension with determinants—-independent variables that are barriers or enablers to implementation—to construct a determinant framework (Nilsen, 2015). The framework's key determinants are the most important implementation enablers (Caves et al., 2019). Bolli, Kemper, Parajuli, Renold, and Thapa (2020) apply those key determinants to analyzing VET reform implementation in Nepal. We follow their approach by using the same key determinants, though our analytical approach is slightly different due to different data structures.

To examine how the five dimensions and their determinants relate to implementation progress, we develop detailed research questions for each dimension based on its key determinants. Figure 1 shows the key determinants in the framework.

Figure 1: VET Implementation Framework



Source: Adapted from Caves et al. (2019)

In the *Content* dimension, the key determinants are strategy and accountability. Najam (1995) defines this dimension as 'The Content of the policy itself—What it sets out to do (i.e. goals); how it problematizes the issue (i.e. causal theory); how it aims to solve the perceived problem (i.e. methods)' (p.4). Strategy is a broad determinant, covering whether there is a sense of clarity, strategy or vision in the reform as opposed to confusion, short-termism, or a feeling that things are unclear. Accountability is the presence of quality assurance measures, regulations, and accountability as opposed to the lack thereof.

H1: The Content dimension—represented by the determinants strategy and accountability—is necessary for implementation to proceed.

The *Context* dimension covers 'The nature of the institutional Context—The corridor (often structured as standard operating procedures) through which policy must travel, and by whose boundaries it is limited, in the process of implementation' (Najam, 1995, p.4). Its key determinants are coordination and context fit. Coordination is the orderly organization of activities from multiple actors toward the reform's goals, efficiency, and good management as opposed to bureaucracy. Context fit is the appropriateness of the project and process for the institutions, culture, and other context factors of the target area, as opposed to a mismatch or bad fit.

H2: The Context dimension—represented by the determinants coordination and context fit—is necessary for implementation to proceed.

The third dimension, *Commitment*, entails 'The Commitment of those entrusted with carrying out the implementation at various levels to the goals, causal theory, and methods of the policy' (Najam, 1995, p.4). Its key determinants are political will and cooperation. Political will is general demand for the reform and leaders' interest in it, as opposed to a supply-side reform or disinterest and opposition from the public and leaders. Cooperation is willingness to work together both within and across institutions, as opposed to conflict.

H3: The Commitment dimension—represented by the determinants political will and cooperation—is necessary for implementation to proceed.

Capacity is 'The administrative Capacity of implementers to carry out the changes desired of them' (Najam, 1995, p.4). Its key determinants are personnel, finances, and research. Personnel is the people needed to carry out the work of implementation, both quantitatively in terms of their availability and numbers and qualitatively in terms of their specific skills and knowledge. Financial resources are money to hire new people, make new materials, develop new processes, and communicate information. Finally, information covers research evidence informing policymaking, general information on best practices, and reform evaluation.

H4: The Capacity dimension—represented by the determinants personnel, finances, and information—is necessary for implementation to proceed.

The last dimension, *Clients*, includes 'The support of Clients and Coalitions whose interests are enhanced or threatened by the policy, and the strategies they employ in strengthening or deflecting its implementation' (Najam, 1995, p.4). Caves et al. (2019) focus on the engagement of individual actor levels and types to differentiate this dimension from the others. The key determinants in this dimension are employers, intermediaries, and educators. Employers reflects engagement with actors from the employment system for VET design, delivery, and updating. Intermediaries are industry associations, trade unions, and other facilitating bodies. Educators are actors from the education system including education governance, school leaders, and teachers.

H5: The Clients dimension—represented by the determinants employers, intermediaries, and educators—is necessary for implementation to proceed.

Finally, all of the above hypotheses imply that all dimensions are necessary for implementation. Therefore, we develop a hypothesis to that effect in order to test whether all dimensions are in fact required for the implementation process to continue.

H6: Every dimension—Content, Context, Commitment, Capacity, and Clients—is necessary for implementation to proceed, as is every key determinant.

These are the specific hypotheses we test using empirical data from the Serbian case. The next section describes that case in detail.

3. Context

The reform in question is the implementation of a dual VET² law in Serbia called the Law on Dual Education. VET is the majority upper-secondary program in Serbia, serving 75% of students in each cohort (KOF Factbook, 2017). Dual VET is the specific type of VET where students split time between the workplace and classroom learning (OECD, 2017).

The law formalizes and nationally regulates dual VET at the upper secondary level, as opposed to the previous system where VET schools and companies could collaborate on an *ad hoc* basis. The law implements a new apprentice-company matching process and regulations covering workplace learning time, students' remuneration and non-monetary compensation for time spent in the workplace, companies' participation in career guidance and counseling, training certification for companies, instructor licensing for in-company trainers, and contracts for both the student-company and school-company relationships, among other changes (Law on Dual Education of 2017, Serbia).

The law affects or includes a number of actors and institutions. The Ministry of Education³ is in charge of implementation, along with the Chamber of Commerce⁴, which represents companies. The Ministry of Education's regional offices, called Regional School Administrations, support it in implementation. Similarly, the Chamber of Commerce also has regional offices to provide ground-level support. The Chamber of Commerce is responsible for certifying companies and for training and licensing in-company instructors. Each school and company must follow the new processes and regulations when implementing a dual VET occupational profile.

Serbia promulgated the new law in 2017, and full-scale implementation began in the 2019-2020 school year, although pilots have been underway since 2013 and 2017, respectively. Schools can choose to participate, but can also continue offering VET under old regulations. Students in schools and occupations that operate according to the new law have not yet completed the program as of this writing, but in the schools that opt in, implementation has led to significant changes in the key processes outlined by the law. The number of classes offered under the new protocol more than doubled between the 2018-2019 and 2019-2020 school years, and nearly every key tenet of the law began to translate from goals to action (Renold et al., *forthcoming*). Therefore, we treat this implementation case as one that is making progress.

² Dual VET in Serbia is generally referred to as “dual education.” We use the international term here to prevent confusion.

³ Referred to in Serbia as the “Ministry of Education, Science, and Technological Development” (MoESTD)

⁴ Referred to in Serbia as the “Chamber of Commerce and Industry Serbia” (CCIS)

4. Materials & Methods

Our goal is to categorize each dimension as supporting implementation progress or acting as a barrier based on the data related to the determinants in each dimension. We test H1 by analyzing relevant documents and our field notes, and test H2-H5 using a stakeholder-interview dataset. For H6, we assess our findings from all dimensions together. In the following, we will describe those methods and data sources.

4.1 Documents and Field Notes

To address H1, we review reform documents and our field notes with regard to the key determinants in the *Content* dimension—strategy and accountability. Reform documents include the law itself, its bylaws, and research on the reform (Renold & Oswald-Egg, 2017). Additionally, we review field notes made during four visits to Serbia over a period of 1.5 years. These include our individual field notes taken during the visits and an internal summary document written immediately after each visit. Field notes capture our observations in meetings and discussions with leaders and stakeholders in Serbia's VET sector.

4.2 Interview Dataset

For H2-H5, we use a dataset of stakeholder interviews carried out in late 2018 and early 2019 (Renold et al., 2019). We draw 116 observations based on the items we need to test our hypotheses. Table 1 summarizes the interview subjects we use by category. For the government, and chamber of commerce, the sample of interview subjects represents the full population of dual-VET-related actors. Subjects in the latter categories are representatives, sampled to balance geographic representation.

Five schools have been piloting the new model since 2013, with 84 implementing in 2017-2018 and 247 schools not participating according to the Serbian Ministry of Education. The sample includes principals and program coordinators from three pilot schools (six interviews total), as well as the same two representatives from the nine schools that started offering the new model in 2017-2018 (18 interviews total). The data also includes interviews with the principals of 19 schools that did not participate in the new model at the time of the interviews. Of the 600 companies currently involved in education, 18 companies appear in the dataset along with eight non-participating companies. The dataset also includes three respondents from trade unions and five respondents from international donor groups.

Table 1: Sample

Category	Department/Subset/Group	N
Government	Ministry of Education	3
	Other relevant national bodies	4
	Regional School Administrations	14
VET Schools	Schools engaged in pilot	6
	Schools engaged in early implementation	18
	Non-participating schools	19
Companies	Participating companies	18
	Non-participating companies	8
Chamber of Commerce	National Chamber of Commerce Office	3
	Regional Chamber of Commerce Units	15
International Donors	International education community and donors	5
Organized Labor	Trade unions	3
Total		116

The interview data captures the overall attitude of respondents toward implementation and their specific concerns, challenges, and opportunities with the law overall and with specific issues. We draw a specific set of questions from the data to address our hypotheses. Table 2 summarizes the interview questions we used for each hypothesis.

Table 2: Interview data by dimension

Dimension	Determinant	Interview Question(s)
Content	Strategy	n/a
	Accountability	n/a
Context	Coordination	Right now, are all of the relevant actors and institutions coordinated to implement dual VET?
	Context Fit	Do you think dual VET fits with the needs of Serbian students and companies?
Commitment	Political Will	How willing do you think your institution is to implement dual VET?
	Cooperation	Is your organization prepared to cooperate with other actors on implementing dual VET?
Capacity	Personnel	Does your organization have enough [<i>personnel, financial, information</i>] resources to implement dual VET?
	Financial	
	Research	
Clients	Employers	How willing do you think [<i>actor</i>] is to implement dual VET?
	Intermediaries	<i>Educators</i> includes Ministry of Education, Regional School Administrations, Schools <i>Employers</i> includes Companies
	Educators	<i>Intermediaries</i> includes Chamber of Commerce (national and regional), International Donors

Responses to each interview question include quantitative data in yes or no answers and a five-point Likert scale, as well as optional qualitative open responses. We primarily use the quantitative responses, and include qualitative responses to support and deepen quantitative findings.

5. Results

We present results by dimension, addressing each hypothesis in turn.

5.1 Content

The determinants under *Content* are strategy and accountability. The strategy determinant covers the clarity and quality of the plan for implementation. The law and its bylaws describe a series of interdependent critical moments throughout the implementation process. For example, companies need to be certified by the Chamber of Commerce and must have trained, licensed instructors before they can host students, which means the Chamber of Commerce had to develop certification and licensing processes in addition to implementing them and training every interested company and instructor. Other processes are similarly complex, requiring multiple steps and a variety of actors. For example, schools match students with companies according to a new process requiring every company in a given occupation to interview every student in that occupation—with their parents—before both sides submit priorities and the school program coordinator allocates students.

Although the end goal is relatively clear, the implementation strategy is not fully articulated, and is made more difficult because the project is complex, large-scale, and rapid. According to our field notes, VET leaders in the Ministry of Education and Chamber of Commerce have engaged quickly and deeply with the project, but have huge workloads of process development, process implementation, new partner engagement, and legal interpretation. Many of the key processes required to make the new model work are not articulated in the law and must be created as needed. We found that stress levels were very high despite a strong, shared desire to make everything work. The strategy determinant in this case captures the huge challenges associated with making major changes and innovating under pressure. Therefore, although the law and its bylaws outline a clear goal and stakeholders' effort is very high, the implementation strategy is a barrier in this case.

Accountability is the second determinant in the *Content* dimension, and is mainly addressed by the bylaw on the evaluation of institutions. This defines evaluation procedures and indicators, mainly focused on school performance. The accountability measures internal to the new model are adequate, but they are undermined because the new model itself is optional—existing workplace learning models and pre-existing VET programs can continue, despite being less regulated and not requiring remuneration. Because implementers can choose whether or not they wish to follow the law in delivering dual VET, the accountability of the law is weak. Therefore, the accountability determinant is also a barrier to implementation.

The two determinants under the *Content* dimension are strategy and accountability, and both are barriers in this case. Therefore, we categorize the *Content* dimension as a barrier to implementation in this case. H1 states that *Content* is a necessary condition for implementation progress, but implementation is progressing even though *Content* is not a success factor. Therefore, we reject H1.

5.2 Context

This is the first dimension we address using interview data directly related to its determinants—coordination and context fit. Table 3 summarizes data on these determinants by respondents' actor group.

Overall, 65.5% of respondents agreed that all of the relevant actors and institutions were coordinated for implementation. Non-participating companies, schools of both types, and Regional School Administrations drove the negative responses, while the government, Chamber of Commerce, and participating companies were all optimistic. Those who did not believe coordination was ready got a follow-up question asking whether coordination will be sufficient by the time full implementation begins. The majority (56%) said no. Participating schools were the most pessimistic, with Regional School Administrations and non-participating companies also unconvinced that coordination problems would be resolved. In contrast, the government, trade unions, and participating companies all believed that coordination would be resolved by the time full implementation started.

Table 3: Context dimension results

Category	Subset	Coordination at Present	Coordination at Implementation ^o	Fits Context
Government	Ministry & National Bodies	86%	100%	100%
	Regional School Administrations	50%	33%	77%
VET Schools	Participating	57%	13%	71%
	Non-participating	47%	56%	84%
Companies	Participating	94%	100%	89%
	Non-participating	43%	33%	71%
Chambers of Commerce	National Chamber	100%	-	67%
	Regional Chambers	80%	67%	93%
International/Donors	All	60%	50%	100%
Organized Labor	Trade unions	67%	100%	67%
Mean		65%	56%	83%

^oOnly respondents who answered 'no' to the question on present coordination got the follow-up question on coordination by the time full implementation begins.

Most respondents (83%) affirmed that the law fits with the needs of Serbian students and companies, addressing context fit. The national Chamber of Commerce, trade unions, participating schools, and non-participating companies are less—though still mostly—convinced. There is interesting disagreement on who it works for, with comments like *'It totally fits with the needs of students, but companies aren't satisfied, sometimes they don't see the benefits from dual VET'* contrasting with *'The initiative for the adoption of the law...came from companies.'* These two positions are not necessarily polar opposites, but they do illustrate the variation in the way interviewees perceive the way the law fits into Serbia's context. Overall, however, the consensus appears to be that the law is a good fit for Serbia.

The two determinants under this dimension are somewhat at odds with one another. Although interview respondents generally agree that the law is a good fit for the Serbian context, they also report that coordination among institutions for dual VET is currently insufficient and may

not improve by the time the law goes into full implementation. It is unclear whether the *Context* dimension is a barrier or support to implementation progress in this case. Therefore, we can neither reject nor find support for H2.

5.3 Commitment

Two questions in the interview dataset directly address political will and cooperation. Table 4 shows institutions' willingness to implement by actor group. On a 5-point Likert scale, the average response was a 4.4. The highest scores come from government, the national Chamber of Commerce, regional Chamber of Commerce offices, and the schools and companies that already participate in the new model. The lowest come from trade unions and non-participating schools and companies, but none are below the three-point neutral threshold. One participating school expressed strong commitment, saying '*We are prepared to cooperate with everybody who recognizes the importance of dual VET and who wants to improve it.*'

Table 4: Commitment dimension results

Category	Subset	Political Will ^o	Cooperation ^{oo}
Government	Ministry & National Bodies	5.0	100%
	Regional School Administrations	4.4	93%
VET Schools	Participating	4.5	100%
	Non-participating	3.7	100%
Companies	Participating	4.8	100%
	Non-participating	3.4	88%
Chambers of Commerce	National Chamber	4.7	100%
	Regional Chambers	4.9	100%
International/Donors	All	4.8	100%
Organized Labor	Trade unions	3.3	-
Mean		4.4	98%

^oAll answers are scored on a 5-point Likert scale where 1 means 'not at all' and 5 means 'very much.'

^{oo} All answers are on a yes/no scale, whereby 100% indicates having only yes-answers and 0% having only no-answers.

The question for cooperation asked whether respondents believe their organizations are willing to cooperate with other organizations for implementation. The response to this question is overwhelming, with 98.2% of respondents saying yes (see Table 4 Cooperation). The only actor groups that had any 'no' answers at all—and even then a small minority—were Regional School Administrations and non-participating companies. In their comments, many respondents noted that they were already cooperating or beginning to cooperate with external partners. Some saw their own roles as very important, including a regional Chamber of Commerce respondent who states that the organization '*educates, informs and motivates all the participants.*'

Both determinants in this dimension are very strong. Willingness to implement is very high, and nearly all actors report that their institution will cooperate with others for implementation.

We categorize the *Commitment* dimension as a supporting dimension for implementation in this case. Therefore, we find support for H3.

5.4 Capacity

The interviews asked specifically about each of the three key resource types in the *Capacity* dimension: personnel, finances, and information. Table 5 shows results by resource type and actor. Overall, interviewees report that they have most of the resources they need to implement, with personnel at 4.08 on a five-point Likert scale, finances at 3.52, and information at 4.12.

Under personnel, regional Chamber of Commerce offices and the participating schools and companies are better resourced than most, and the government reports a lack of personnel along with the national Chamber of Commerce and Regional School Administrations. Finances score the lowest overall, with the government, Regional School Administrations, and non-participating schools feeling the least financially prepared. Participating companies and the national Chamber of Commerce report more-adequate-than-average financial resources. Finally, there is a top-down trend in information and research resources, with the government and the Chamber of Commerce reporting having more adequate evidence and information than Regional School Administrations and non-participating companies. The exception is with participating schools, who report higher-than-average information resources.

Table 5: Capacity dimension results

Category	Subset	Personnel ^o	Finances ^o	Information ^o
Government	Ministry & National Bodies	2.8	3.0	4.3
	Regional School Administrations	3.1	2.3	3.4
VET Schools	Participating	4.4	3.5	4.4
	Non-participating	4.1	3.3	4.2
Companies	Participating	4.6	4.6	4.2
	Non-participating	4.1	3.6	3.9
Chambers of Commerce	National Chamber	3.7	4.0	4.3
	Regional Chambers	4.5	3.6	4.3
International/Donors	All	-	-	-
Organized Labor	Trade unions	-	-	-
Mean		4.1	3.5	4.1

^oAll answers are scored on a 5-point Likert scale where 1 means 'not at all sufficient' and 5 means 'we have enough.'

Some qualitative responses indicate more complexity, however. Although resources are generally adequate in the government, one respondent states that '*We don't have enough employees so we are overloaded by tasks.*' Regional School Administrations have the lowest scores, especially financial resources (2.43). One Regional School Administration reported planning to hire a new person for implementation, and other reaffirmed that '*We have a lot of other duties.*' More specifically, one Regional School Administration stated that '*We have information but we don't have materials.*'

Different branches of regional Chamber of Commerce state very different resource levels. While one region states, *'[National Chamber of Commerce] staff provides all necessary information and materials,'* another contradicts, *'Training through work is a new system so there is not enough distribution of material, but constant work, information exchange, and promotion of the dual VET system.'* Interestingly, other actors report concern that regional Chamber of Commerce offices, while very important for the new system, does not have sufficient resources.

Participating schools and companies have the highest overall capacity. However, even among these more prepared actors there is still some demand for further resources. One school leader states that personnel is adequate *'On particular profiles yes, but on some profiles existing teaching staff need more support.'* However, schools that already participate in the new model are generally confident, like the respondent who simply asserts, *'We have qualified and motivated human resources.'*

The quantitative data indicates that capacity is generally close to sufficient in all three determinants of personnel, finances, and information. However, the qualitative responses uncover some concerns and potential weak points. It is unclear whether the *Capacity* dimension is a barrier or support to implementation progress in this case. Therefore, we can neither reject nor find support for H4.

5.5 Clients

The key determinants in the *Clients* dimension are employers, intermediaries, and educators. The interview data includes questions for each actor group on their own motivation to participate—covered under commitment—as well as a question asking each actor to report whether the others are willing to implement the law.

We aggregate actor groups into the three determinant categories. Educators are represented by schools (both participating and not), the government, and Regional School Administrations. Participating and non-participating companies go into the 'employers' category. Finally, the Chamber of Commerce, regional Chamber of Commerce offices, and international donors are intermediaries. We leave out trade unions because they fall under their own minor determinant in the original framework. Table 6 shows self-reported and peer-reported engagement by aggregated group.

Table 6: Capacity dimension results

Aggregated Group	Actors	Self-Reported Engagement ^o	Peer-Reported Engagement ^o
Educators	Government Regional School Administrations VET Schools	4.3	4.4
Employers	Companies	4.4	3.6
Intermediaries	National Chamber of Commerce Regional Chamber of Commerce International Donors ^{oo}	4.9	4.39
Mean		4.4	4.2

^oAll answers are scored on a 5-point Likert scale where 1 means 'not at all willing' and 5 means 'very willing.'

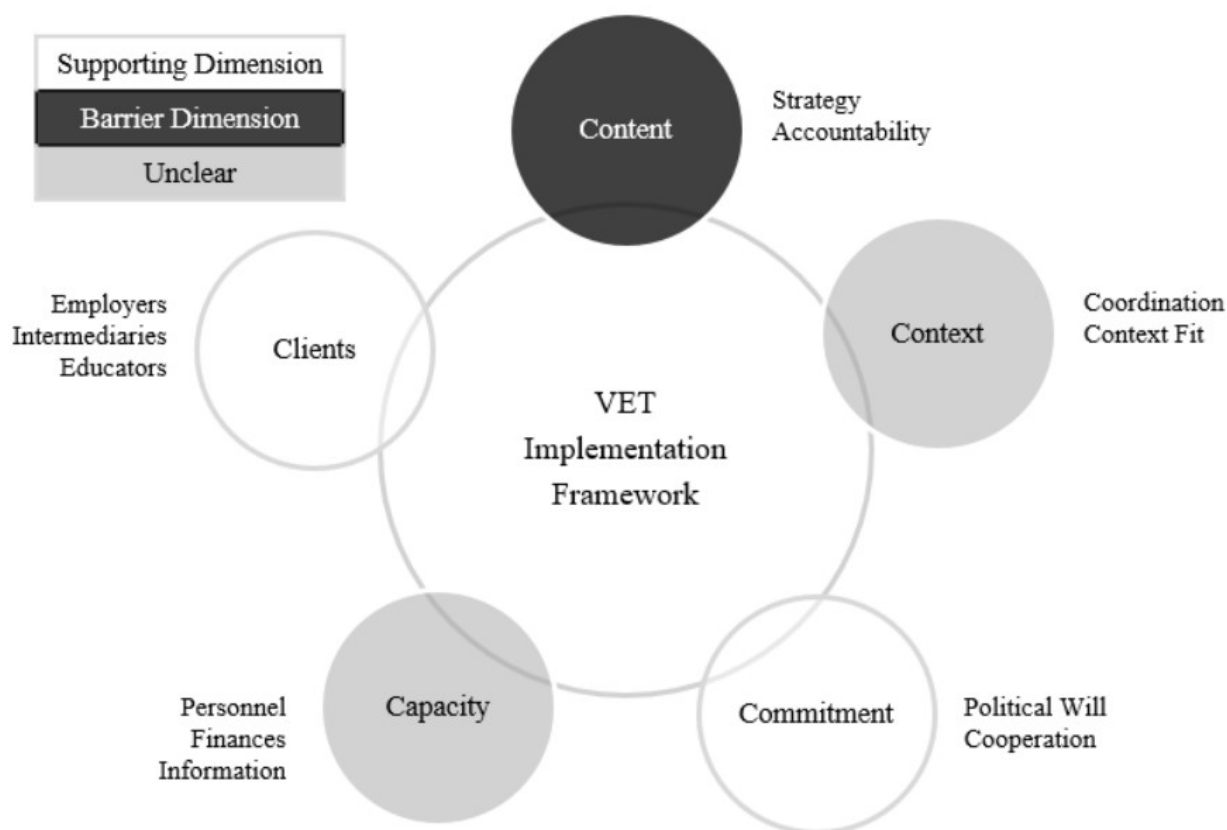
^{oo}International donors are not included in the peer-reported engagement scores, and trade unions are not included because they have a (non-key) dimension.

In self-reported engagement, the overall average is 4.42 out of a five-point Likert scale, indicating strong engagement. The peer reported engagement is also strong, at 4.15 points. Intermediaries have the highest self-reported engagement, at 4.87. Employers have low peer-reported engagement (3.56), while the other two groups are considered highly engaged by their peers (4.35 for educators, 4.29 for intermediaries). No score is below the three-point midpoint, therefore, we categorize the *Clients* dimension as a supporting dimension for implementation in this case. This indicates support for H5.

5.6 All Dimensions

Figure 2 summarizes the results, with black used to show barrier dimensions and white for supporting dimensions. Grey dimensions are unclear. We find that *Content* is a barrier, *Commitment* and *Clients* are supporting dimensions, and the other two—*Context* and *Capacity*—are unclear. With this information, we turn to our sixth hypothesis and examine how configurations of determinants and dimensions may explain implementation progress.

Figure 2: Summary of results



Given that implementation is progressing in this case while *Content* is a barrier dimension and *Context* and *Capacity* are unclear, it is not necessary for all five dimensions to be supporting dimensions or even neutral. It is also not necessary for all 12 key determinants to be supportive of implementation—strategy, accountability, coordination, and finances are either unclear or barrier determinants. This indicates that some individual dimension or determinant, or some combination or configuration thereof, is a sufficient condition for implementation.

Based on these results, it is possible that clients, commitment, or the combination of those two is a sufficient condition for reform. Similarly, at the determinant level it be possible that the key

is some individual or combination of context fit, political will, cooperation, personnel, information, employers, intermediaries, and educators.

Finally, it may be that instead of some specific factor being necessary or sufficient, implementation progress requires some threshold quantity of dimensions or determinants. The evidence presented here could show that implementation can proceed as long as only one dimension is a barrier, as long as two or more are supporting factors, or as long as the median dimension is at least neutral.

Despite that fact that not all dimensions are success factors, implementation is progressing in this case. Therefore, we find that all dimensions are not necessary for implementation progress, nor are all determinants. As a result, we reject H6.

The discussion section turns from the specific hypotheses to the overarching question of why some implementation efforts in VET succeed and others do not, and whether this framework helps answer that question.

6. Discussion

The ultimate goal of this research agenda is to understand why some efforts at education policy implementation progress while others do not. In this discussion, we consider how case-specific features may play a role in implementation progress, identify some of the ways dimensions and determinants might relate to one another, and relate our findings to the broader context and literature of education policy implementation.

A single case study is limited by definition, and some condition of this case may be part of the sufficient conditions for its implementation progress. The reform discussed here is a top-down formal process that started with a law. We observe the impact of this in the interview data, when respondents state things like '*We will implement the law because we must.*' Therefore, it may be that the implementation drivers in this case are commitment, clients, and a top-down reform, and a bottom-up reform would have a completely different configuration like requiring every dimension or sufficiency from just one unrelated to commitment and clients.

Even if commitment and clients are indeed sufficient for implementation progress across cases, the implications of that finding vary significantly by case. For example, a bottom-up reform cannot use legal obligation to proceed, so would need to develop relationships with specific actors and engender commitment through different—and probably more time-consuming—means. A case implementing VET for the first time may lack the intermediaries that play a key role in the *Clients* dimension, so that project may have to build intermediaries first and then engage with them.

That challenge raises the as-yet-unanswered question of how determinants and dimensions relate to each other. The ideal endpoint of research like this would be a weighted framework of dimensions and key determinants that can serve as a guide for improving the chances of implementation progress. At this point, however, it is not clear how items interact. There may be a weighting scheme that can show which items are more and less important, but the solution may also be a configurational approach that provides implementers with a few possible ways to combine items and reach their goals. This paper has taken a more configurational approach—focusing on sufficiency and necessity—but the real mechanism could be more additive.

Empirical research in the broader field of education policy implementation has already highlighted similar determinants to the ones we use here. For example, Morris and Scott (2010) identify inertia, cynicism, lack of coordination, and low capacity as barriers in Hong Kong. In the Philippines, communication gaps, a convoluted network of linkages, weak coordination, and low accountability lead to corruption and failed implementation (Reyes, 2009). Time pressure, top-down reform, lack of financial and human resources, and poor management have all been barriers in the UK (Baird & Lee-Kelley, 2009).

Other implementation factors are more complex, or even positive. Little (2011) characterizes political will as a double-edged sword following her analysis of a reform in Sri Lanka. Reeves and Drew (2012) point out the dynamic nature of policy implementation, highlighting successive recontextualizations from political will to policy plan, then plan to practical action, and finally from action to dissemination. In a relatively rare example of a case study recounting successful policy implementation in education, Salazar-Morales (2018) credits the improvement of Peru's Ministry of Education to successful long-term planning and political consensus, among other factors. This indicates that we can interpret our findings broadly across both contexts and education policy subfields.

7. Conclusions

In our policy implementation case, we find that this project's content is a barrier to implementation, its context and capacity are unclear, and commitment and clients are supporting dimensions. Given that implementation is progressing as of this writing, this indicates that not all dimensions are necessary for implementation progress, and that some or some combination of dimensions or determinants is sufficient. The case further develops intriguing possibilities that dimensions and determinants vary in their importance for implementation progress, that some threshold proportion of supporting factors is sufficient, and that context-specific factors may also be part of the configuration driving implementation.

Implementing policy changes is a crucial step on the progression from evidence-based policy design to improved outcomes. Existing frameworks and checklists are largely untested, limiting their utility for both theory and practice. This study tests one framework of key implementation determinants. Although the determinants we analyze are VET-specific and our determinant-level findings apply mainly to VET, the dimensions we investigate apply to policy implementation in general. Therefore, our findings and method are applicable in all types of education policy implementation.

This study makes three main contributions to the literature. First, we find that we can begin to quantify a reform's implementation factors, and this process shows great promise for cross-case comparison and possibly even operationalization into a measurement tool. Second, we find initial evidence that implementation can proceed even if some determinants or dimensions are not success factors. In this case, most of the key determinants are success factors, but we cannot draw any conclusions about the threshold. Finally, we develop some potential explanations—to be tested in future research—for how the determinants of education policy implementation may interact, combine, or configure to drive implementation progress.

The main limitations of this study are its simplified application of the framework, its non-causal nature, and its single-case scope. We begin testing the framework at the dimension level using only the key determinants. The framework includes other, less-important determinants that we do not assess, and further studies designed to examine those would make important contributions. Another interesting avenue for further research is the relative weighting of key determinants and dimensions, which we do not address. The analyses we present use a relatively large interview dataset with both qualitative and quantitative data, but they are descriptive, not causal. Finally, we describe only one case.

Further research and additional cases of both ongoing and historical reforms can fill in the gaps and begin to establish patterns. We will continue to follow this case to determine whether eventual implementation outcomes follow a similar pattern to progress during the implementation phase.

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