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The effects of communication apprehension on group performance

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With this study the phenomenon of communication apprehension is considered and the findings of an exploratory study into the effects of communication apprehension on group performance in a computerized marketing decision-making simulation are presented. Despite the many effects of communication apprehension as alluded to in the literature, it is evident from this study that communication apprehension (or absence thereof) among some or all members of a group in participation in a business game has little or no effect on group success.

In hierdie studie word die verskynsel van kommunikasievrees oorweeg, en die bevindings van 'n verkennende studie na die gevolge van kommunikasievrees op groepprestasie in 'n gerekenariseerde bemarkings-besluitnemingsimulasie bespreek. Ten spyte van die verskeidenheid gevolge van kommunikasievrees soos in die literatuur bespreek, blyk dit dat kommunikasievrees (of gebrek daaraan) onder al die of sommige van die lede van 'n groep in 'n besigheidspel, geen of 'n klein effek op die prestasie van die groep het.

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Introduction

Groups and group dynamics have been areas which have received considerable attention not only in social psychology and sociology, but in the last thirty years, also in the field of managerial decision-making. Many activities within organisations are performed in a group context. Budgets are compiled by committees, new products are evaluated by marketing teams and strategic plans are constructed by top management team members. Much of the confidence in the use of groups in management decision-making has its origins in the belief that 'two heads are better than one'. Some early research in fact indicates that this is so.

There is a vast body of research on groups and what makes them effective which are beyond the focus of this paper. Attention is given to the phenomenon of communication apprehension and the findings of an exploratory study into the effect of communication apprehension on group performance are presented.

Communication apprehension

For many years, oral communication scholars have explored the impact that a person's fear, or anxiety about communication have on that person's communication behaviour. It has been consistently observed that there are individuals who are more apprehensive orally than others, and that this apprehension generally has a negative effect on their communication as well as on other important aspects of their lives (McCroskey, 1977). This piece of work is generally regarded as the definitive in the area, and most of the more recent work has focused on specific applications of concepts (Pitt and Ramaseshan, 1989). While synonyms have sometimes been used (most notably 'stage fright', 'reticence', 'shyness'), the term 'communication apprehension' is suggested by McCroskey (1970, 1977), as being most

appropriate because it more broadly represents the total of the fears and anxieties implied. It can be defined as an individual's level of fear or anxiety with either real or anticipated communication with another person or persons (McCroskey, 1977). More recently, Kelly (1982) has argued that reticence, communication apprehension, unwillingness to communicate, and shyness are all part of the same problem, that they are not discrete, and that they overlap to a great extent. For purposes of this analysis then, they will be regarded as being synonymous. The communication apprehensive person will avoid communication much of the time in order to avoid experiencing the fear or anxiety he or she has learned to associate with communication encounters. There are of course differences in degree. Speaker apprehension exists on a continuum, and people cannot simply be categorised as apprehensive or non-apprehensive. All individuals experience some degree of apprehension. There are those who are extremely apprehensive, and who become incapacitated when expected to perform some oral communication task, suffering the inevitable consequences of living in what is essentially a communication society. Other individuals are so mildly apprehensive as to exhibit no fear at all, and in fact seem to thrive on communication. Most people fall between these two extremes.

Spielberger (1966) and Lamb (1973) have made a distinction between 'state' and 'trait' apprehension. Trait apprehension refers to fear of communication generally, regardless of the specific situation, while state apprehension is a fear that is specific to a given communication situation (DeVito, 1986). Some may fear public speaking, while being quite confident in meetings. Others may have no difficulties in a group situation, but may be most reticent in a job interview. State apprehension is obviously far more common than trait, it

is something that will be experienced by most persons for some situations, and will of course differ from situation to situation. There will be times when a practised public speaker will feel apprehensive about giving a well rehearsed speech — to an unknown and new type of audience for example. McCroskey (1977) stresses that state apprehension is a normal response to a threatening situation experienced by most normal people, and is in no way pathological. Rather, the opposite is true — one could suspect the emotional stability of a person who never experiences state apprehension in threatening oral communication situations. Trait apprehension, however, is not characteristic of normal, well-adjusted individuals, for they experience apprehension even in situations which could not be described as even remotely threatening. (For some examples see Phillips, 1968.)

Communication apprehension: some causes

DeVito (1986) considers five major causes of communication apprehension. Firstly, a lack of communication skills and experience will cause communication apprehension — for example for the individual who has never spoken before a large audience, or received training in public speaking, it is perfectly reasonable to assume that he or she will be apprehensive. Secondly, the degree of evaluation to which the speaker is being subjected will increase communication apprehension — as in the case of an employment interview, or perhaps a sales presentation. Then there is also the degree of conspicuousness — the more conspicuous the speaker is the more he or she is likely to feel apprehensive. This explains a lot of communication apprehension in a public speaking situation. A further contributing factor is the degree of unpredictability — the more unpredictable the situation, the greater the apprehension. New situations, or ambiguous situations will enhance the fear. Finally, an individual's history of prior successes and failures will greatly influence his or her response to new ones. Prior successes will generally reduce apprehension, while failures in the past will tend to augment it.

More than anything, McCroskey (1977) believes that communication apprehension is a learned trait. No one is born apprehensive, apprehension is a trait that is conditioned through reinforcement of the child's communication behaviours. McCroskey (1977) refers to Bugelski's (1971) assertion that it is well established that a child will learn to repeat behaviours that are reinforced, while behaviours that are not reinforced will generally be extinguished over time. Wheelless (1971) has in fact demonstrated that communication apprehension develops in early childhood.

Results and effects of communication apprehension

Because communication apprehension is a trait of the individual, it is reasonable to assume that it is correlated with a number of other individual personality traits. McCroskey's (1977) review of communication apprehension asserts that this is indeed so, and he points to several studies which have indicated that communication apprehension is associated with a wide variety of personality

variables. A major study (McCroskey, Daly and Sorensen, 1976) found communication apprehension to have a moderately high positive correlation with general anxiety, and a moderately high negative correlation with tolerance for ambiguity, self control, adventurousness, surgency and emotional maturity. A later study (McCroskey, Daly, Richmond and Falcione, 1977) reported a substantial negative correlation ($r = -.52$ to $r = -.72$) between oral communication apprehension and self-esteem. This study also indicated highly consistent relationships across age groups and occupational types.

McCroskey (1977) has outlined three general theoretical propositions regarding the effects of high communication apprehension, and these have also been generally supported by further research:

1. *People who experience a high level of communication apprehension will withdraw from and seek to avoid communication when possible.* McCroskey (1970), for example, reports students with high communication apprehension withdrawing disproportionately from public speaking courses; Weiner (1973) found that individuals with high communication apprehension sought seating positions which would 'let them off the communication hook' in group discussions; McCroskey and Andersen (1976) found that students with high communication apprehension tended to seek larger, (presumably more innominate) classes, rather than smaller ones which would permit more interaction. A very clear prediction is that people with high communication apprehension will prefer occupations that require less communication. Daly and McCroskey (1975) found this pattern not only to be clearly present, but the pattern to hold even when the positions requiring higher levels of communication promised greater social and monetary rewards. McCroskey (1977) summarises by saying that the pattern generated by these (and other) studies is clear and strong — people who experience high levels of communication apprehension will withdraw from and seek to avoid communication whenever possible.
2. *As a result of their withdrawal from and avoidance of communication, people who experience a high level of communication apprehension will be perceived less positively than people who experience lower levels of communication apprehension by others in their environment.* People with high communication apprehension have been found to be perceived as less socially attractive, less task attractive, less competent, less sexually attractive, less attractive as a communication partner, less sociable, less composed and less extroverted (but of slightly higher character) (McCroskey, Daly, Richmond and Cox, 1975; McCroskey and Richmond, 1976; Wissmiller and Merker, 1976).
3. *As a result of their withdrawal and avoidance behaviours, and in conjunction with the negative perceptions fostered by these behaviours, people who experience a high level of communication apprehension will be negatively impacted in terms of their economic, academic, political and social lives.* High

communication apprehensives do not always find work that is pleasing to them (Falcione, McCroskey and Daly, 1977) and also serve less time in a particular job (Scott, McCroskey and Sheehan, 1977). Most studies of high communication apprehension in an academic environment have found a negative correlation between it and academic performance (see McCroskey, 1977 for an extensive list of studies in this regard). Communication apprehension was found to be significantly negatively related to both middle-school students' attitude towards school and final grades (Hurt and Preiss, 1978). Furthermore, communication apprehensive students were found not to be desirable communication choices by their peers.

Measurement of communication apprehension

Measurement of communication apprehension can be divided into measurement of state communication apprehension, and measurement of trait communication apprehension. Measurement of state communication apprehension has focussed on stage fright, with more contemporary efforts concentrating on physiological measurement (Behnke and Carlisle, 1971); rating scales (Mulac and Sherman, 1974); and, self-report scales (Porter, 1974).

With regard to trait communication apprehension, the self-report approach has received most attention, because communication apprehension is viewed as a cognitively experienced phenomenon. The best known, and still most widely used scale is the Personal Report of Communication Apprehension (PRCA) scale of McCroskey ((originally 1975) 1982). The instrument has consistently held reliability estimates of .90, and over 50 studies utilising it have provided comprehensive arguments in favour of its validity as a measure of oral trait. The first six statements measure communication apprehension in groups; the second six, communication apprehension in meetings; the third six, interpersonal, or dyadic communication apprehension; and, the final six, apprehension of public speaking.

Other measures of trait communication apprehension have included the Lustig Verbal Reticence Scale (1974) and the Unwillingness-to-communicate Scale of Burgoon (1976). They have not received the same research attention of McCroskey's (1982) PRCA scale.

Treatment of communication apprehension

While it is impossible to eliminate communication apprehension, DeVito (1986) has suggested a number of ways by which its debilitating effects can be managed. These include the conscious acquisition of communication skills and experience; preparation and practice; focussing on success; situation familiarization; physical relaxation; and, placing communication apprehension in perspective. Glaser (1981) provides a more detailed, technical exposition of treatment and avoidance of communication apprehension.

Objectives and methods of the study

The objectives of the study reported here were to

determine the effect of communication apprehension of members on the effectiveness of groups, as measured by the profit attained in a business game simulation, The Marketing Game (Mason and Perrreault, 1987). Altogether 95 undergraduate students in 24 groups played the game over a period of nine weeks, making nine sets of decisions. Following the procedures used by Glazer, Steckel and Winer (1987), students were responsible for forming their own groups, and most students had previously worked with the other members of their team. At the end of the game each student was required to complete McCroskey's Personal Report of Communication Apprehension (PRCA) scale.

Results

A comparison of the overall (aggregate) communication apprehension scores of subjects is presented in Table 1.

The main observation to be made from Table 1 is that the communication context Public Speaking is on average the highest score for the subjects. This is consistent with the general population as DeVito (1986) reports — the greatest communication fear that most people have is that of giving a speech before an audience.

The summary statistics for the criterion variable, profit, are reported in Table 2, for the reader's convenience. It will be seen that the most successful group achieved a total profit for the nine periods of 26.222 million dollars, the least successful a combined loss of 3.119 million, and the groups on average achieved profits of 11.403 million dollars.

The obvious question which now begs answering is: Is there a relationship between communication apprehension in its various contexts, and the effectiveness of a group in achieving an objective or performing a task? A broad hypothesis would be that there is no relationship between communication apprehension and the success of a group, as measured in this instance by the profit achieved.

A functional analysis for establishing the relationship between profit as a criterion variable and the communication apprehension scores in different contexts as predictor variables was carried out in an attempt to better understand the individual and joint explanatory power of group members' communication apprehension in different contexts. The primary purpose of this analysis was of course to assess the influence of

Table 1 Summary statistics of communication apprehension by communication context (N = 95)

Communication context	Mean	Standard deviation	Low	High	Range	Median
Group discussions	11.83	3.41	6	22	16	12
Meetings	12.73	4.03	6	23	17	12
Interpersonal conversations	11.99	3.36	6	24	18	12
Public speaking	14.94	3.90	7	25	18	15

communication apprehension on group achievement. For this purpose the following multiple variable regression analysis in its additive (linear) form was considered:

$$y = a + b_{x1} + c_{x2} + d_{x3} + e_{x4} + E$$

where y is the dependent variable representing the measure of profit, a is a constant, x_1 , x_2 , x_3 and x_4 are the independent variables representing communication apprehension scores in each of the communication contexts: group discussions, meetings, interpersonal conversation, and public speaking respectively, and E is the error component. A regression function of the above form was fitted to the aggregate data, using the multiple regression package under Statgraphics (1985). The results are presented in Table 3.

It is evident from Table 3 that none of the contexts of communication apprehension show significant t -values, with the public speaking context being the only one which approaches any degree of significance. From the ANOVA it is apparent that the 95 observations yield a very insignificant regression, with an overall F ratio of only 1.3348. The multiple coefficient of determination, R^2 is only 0.056, which suggests that the fitted model explains only around 6% of the total variance in profit. The adjusted R^2 is 0.014. The latter statistic adjusts for the number of independent variables in the regression. The standard error of estimation measures the unexplained variability in the dependent variable.

A conclusion to be reached from the above analysis is that neither the communication apprehension of group members in general, or any of its contexts, appear to be good predictors of group success in a business game simulation, and the null hypothesis therefore could not be rejected.

Discussion and some obvious limitations

Despite the many effects of communication apprehension, as alluded to in the literature, it is evident from this study that communication apprehension (or absence thereof) among some or all members of a group in participation in a business game has little or no effect on group success. This could be due to the fact that measurement of communication apprehension was post-hoc, and that group members managed to overcome at least three of the contexts of communication apprehension during their process of interaction — namely,

group discussion, meetings and dyadic conversation. This is perhaps also why, contrary to expectation, public speaking became the best (although obviously imperfect) predictor of performance. For logically, this is the context which could be overcome least by a process of group interaction. A desirable, although perhaps difficult to facilitate, area for future research in this regard, is a pre-test of communication apprehension in groups which are not voluntarily formed, and where ideally members would not know each other well before commencing play in the game. Should communication apprehension be found to have an effect under such circumstances, it would firstly be known that where groups are forced to eventuate and operate without prior member accustomisation, it would be desirable to overcome any possible effects of communication apprehension. Secondly, a pre- and post-test of communication apprehension would throw further light on the effect of the group interaction process on the communication apprehension levels of group members. More fundamentally, in the context of a business simulation game at least it would appear that other factors — possibly intelligence or experience, or even sheer hard work — are more closely related to group success.

Table 3 Estimated regression coefficients, their t -test values and coefficient of multiple determination (R^2)

Variable	Coefficient	Std. error	t-Value	Prob (> t)
Constant	4390.72	3554.725	1.2352	.22
X1	175.447	343.651	0.5105	.61
X2	-350.984	373.813	-0.9389	.35
X3	84.726	335.703	0.2524	.80
X4	561.798	300.120	1.8719	.08

Analysis of variance for the full regression

Source	Sum of squares	DF	Mean square	F-ratio	Prob (>F)
Model	3.0995E0008	4	7.8387E0007	1.3348	2.619E-001
Error	5.2181E0009	90	5.7979E0007		

$R^2 = 0.0560003$

Adjusted $R^2 = 0.0140448$

Standard error of estimate = 7614.37

Analysis of variance for variables in the order fitted

Source	Sum of squares	DF	Mean square	F-ratio	Prob(>F)
X1	1.0048E0008	1	1.005E0008	1.7330	.1914
X2	1.2740E0006	1	1.274E0006	0.0220	.8841
X3	4.6358E0006	1	4.636E0006	0.0800	.7810
X4	2.0316E0008	1	2.032E0008	3.5040	.0645
Model	3.0995E0008	4			

Where: X1 = group discussion; X2 = meetings; X3 = interpersonal conversation; X4 = public speaking

Table 2 Profit achieved by 24 groups in the simulation summary statistics

	\$(000)
Mean	11403.4
Standard deviation	7668.4
Largest loss	3119
Largest profit	26222
Range	29341

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