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Human Relations 1974; 27; 225

DOI: 10.1177/001872677402700303

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ABSTRACT

Pairs of subjects performed a simple negotiation task over one of three media of communication (face-to-face, closed circuit television, or a loud-speaking audio link). One person was required to argue a case which was consonant with his personal views; the other person was required to argue a case that bore no necessary relationship to his personal views. Medium of communication had a significant effect on the outcome of the negotiation: the side whose case was consonant with his personal views was more successful under face-to-face than under audio-only communication. Results in the video condition resembled those in the face-to-face condition. The findings are interpreted in terms of a greater emphasis on interpersonal considerations (as opposed to interparty considerations) in face-to-face discussions than in audio discussions.

INTRODUCTION

Recent years have seen increasing interest in the possibility of decentralising business and government from the larger conurbations. One major obstacle to the advantages that would accrue from such decentralisation is the greater difficulty of having face-to-face communication. It is therefore important to determine to what extent telecommunications contacts between dispersed parties could be expected to act as effective substitutes for face-to-face contacts. This paper is addressed to one aspect of the overall problem: what is the effect on the conduct of a negotiation if communication is by telephone or closed circuit television instead of face-to-face?

The variable referred to as 'communication' has attracted a certain amount of experimentation. These studies have typically either confined their

1 The writer is grateful to the Civil Service Department (MSOR) and the Post Office (LRS) who jointly sponsored the project of which this work forms a part, and to Dr. R. P. Kelvin for his criticism and advice.

attention to the presence or absence of 'communication' (e.g. Deutsch and Krauss 1962) or have restricted 'communication' to the passage of a limited number of standardised messages (e.g. Loomis 1959, Daniels 1967). Such studies have neglected the more subtle changes in the nature of the communication which are of practical and theoretical importance.

The visual nonverbal cues normally used in face-to-face interaction whose transmission is affected by the removal of the visual channel include physical proximity, eye-gaze, posture and facial expression. Consideration of the functions of these cues suggests that they convey information primarily about the emotions of the participants rather than about those matters which are ostensibly the subject matter of the meeting (Argyle 1969): (the latter information is transmitted almost entirely verbally). The expected effect of the removal of a certain type of information from the communication channel would be an increased reliance on the other (still available) sources of information. As the visual channel appears to be particularly concerned with socio-emotional information, its removal would be expected to lead to an increased dependence on the more task-oriented verbal channel. This could have implications for the outcome of the interaction.

The negotiation situation is one which might be expected to be particularly sensitive to variation in the medium of communication. Because each person's actions are highly contingent on his perceptions of the other's previous moves, any changes in the communications link which might affect the information available about the other and thus distort interpretations of his actions, could have serious implications for the eventual outcome.

Morley and Stephenson (1969 and a validation study 1970) report one experiment which confirms that medium of communication (face-to-face or telephone) can affect the outcome of a negotiation. Morley and Stephenson made use of a distinction first made by Douglas (1957): this was the distinction between behaviour concerned with maintaining personal relationships ('interpersonal exchange') and behaviour concerned with the role relationships defined by the task situation ('interparty exchange'). They hypothesised that there would be a greater emphasis on the interpersonal exchange in the face-to-face condition at the expense of the interparty exchange. The experimental results were consistent with their hypothesis. There has been no other investigation of this basic hypothesis as to the nature of media effects. The present experiment explores this gap.

Morley and Stephenson's experiment was a role-played simulation of an industrial wage dispute in which one side was provided with a very much weaker case than the other. The 'weak case' side would be expected to be more successful, the more the interaction concentrated on interpersonal considerations and departed from the objective facts of the case (the interparty considerations). It was accordingly predicted, that the 'weak case' would be more successful in face-to-face than in telephone negotiations—this was confirmed by the experimental results.

A question that is fundamental to the interpretation of this effect is the

meaning of the term 'strong'/'weak'. In writing the experimental material, Morley defined strength in terms of the *number* of arguments available to each side – which ignores the possibility that in particular circumstances one argument may prove overwhelming. Most people would define 'strength' operationally in terms of which side was more successful in the final outcome. Although subjects both in Morley and Stephenson's experiments and in a replication by the present author (Short unpublished 1971) showed a high degree of agreement as to which side was 'stronger', this 'strength' was not sufficient to gain that side a more favourable outcome than that obtained by the 'weak' side. Another important source of 'strength' stems from commitment to, and belief in, one's own case. To interpret the results, it is necessary to determine what was the crucial difference between the two sides which was found to interact with medium.

To this end, another experimental task was devised which rendered the two individuals differentially dependent for good outcomes on interperson and interparty exchange. In Morley and Stephenson's experiment the intrusion of *interpersonal* considerations (in the face-to-face condition) was held to represent an advantage for the 'weak' case. The present experiment examines the complementary situation, one in which the intrusion of *interparty* considerations would be expected to represent an advantage for the 'weak' case, because the 'strength' was this time based in interpersonal considerations rather than in interparty considerations (as was the case in Morley and Stephenson's experiment).

The critical difference between this experiment and Morley and Stephenson's experiment was in whether or not the subjects' personal views were consonant with the case their role required them to argue. In the earlier experiment, subjects were randomly assigned to roles and their personal feelings were not systematically relevant to the conflict. In the present experiment, personal opinions were made relevant to the conflict which formed the centre of the negotiation. One side always believed in the case he was asked to argue; the other side's personal view was not consistent with his case, indeed in many cases his actual views may have been dissonant with the view the conflict required him to advocate.

The experimental hypothesis was that in this situation the party who 'had the strength of his convictions' would be relatively more successful under face-to-face than under telephone conditions, i.e. more successful when interpersonal considerations were more salient in the negotiation.

To clarify the origin of this hypothesised effect, a third condition (communication by closed circuit television) was included in the experiment. If the lack of the visual channel was the basis for the effect, this condition would be expected to be similar to the face-to-face condition; if the physical isolation in the audio condition was the basis, the video condition might be more similar to the audio condition. If the video condition gave results similar to the face-to-face condition and different from the audio condition there might be some hope for practical applications of visual telecommunications.

METHOD

THE TASK

A two person bargaining game was constructed for the experiment. The instructions were given in two stages. In stage 1 both subjects were given a brief background indicating that cuts in expenditure were required in a hypothetical government corporation. Nine areas of potential cuts were listed (areas such as 'capital investment in new plant', 'recreational facilities for employees', 'investigations by business consultants', 'unprofitable services' etc.) One individual (A) was asked to rank these areas of expenditure in order of dispensability and to prepare arguments to justify his choice. Meanwhile, the other individual (B) was asked to prepare arguments in favour of cuts in each of the nine areas.

In the second stage of the instructions they were handed sheets which assigned to each individual a separate numerical payoff for each item. The values assigned to A for each area were ordered in accordance with his own ranking, that is to say, those areas which he had ranked as most dispensable were, for him, associated with the lowest payoff. The values assigned to B for each area were inversely ordered to those of A (B's most valuable area was thus A's least valuable area). The ordering given to B thus bore no necessary relationship to B's actual opinion.

The joint task was to agree on three items from the list of nine. Each individual was given the objective of maximising his individual payoff resulting from the agreed three areas. The payoff to each side resulting from the agreement formed the main dependent measure.

The instructions, too, differed for the two individuals so as to emphasise the personal involvement of A but not of B. A's instructions stressed his personal commitment to his ranking of the areas and indicated that he should maximise his payoff simply by justifying his choice to an opponent. B's instructions pointed out the conflict with A and instructed him to use his bargaining skill to maximise his own payoff.

SUBJECTS

The subjects were 96 civil servants drawn from government managerial training courses. The several sources were, so far as possible, balanced across conditions. Although predominantly men, some of the subjects were women (7 in all, balanced across conditions, so far as possible). No attempt was made to control for sex, as it was felt that the results should apply to a representative sample of the population from whom the subjects were drawn. Most of the subjects had a passing acquaintance with their partner, although, in general, the training course on which they were engaged was the first occasion on which they had met.

PROCEDURE

Subjects were randomly assigned to a partner (from their own course) and to a media condition (16 pairs in each media condition). Face-to-face subjects sat about 2 m apart across a small table. In the video condition they sat 3 m from a 23 in television monitor showing a head and shoulders picture of the opponent who was sitting behind a small table. The arrangements in the audio condition were exactly as for the video condition, but with the visual channel switched off. Twenty five minutes was the stated time limit, although in the cases where agreement had not been reached more time was allowed. When agreement had been reached subjects returned to separate debriefing rooms to complete a questionnaire recording the agreed outcome, rating the other participant (on 6 scales) and the task (on 5 scales) in order to assess the effect of the experimental task manipulation. The six scales used for the rating of the other person were chosen so as to be two loading highly on each of three of the factors found by Snyder and Wiggins (1970) in their multivariate analysis of affective meaning systems.

ANALYSIS

The task was non-zero sum. This meant that the members of each pair could cooperate to mutual advantage. Thus, although the scores for the two individuals within one pair were negatively correlated, this correlation was far from perfect. The two scores from each pair (one for the 'consonant' individual and one for the 'non-consonant') are thus distinct (not perfectly correlated) but are 'dependent'. Accordingly, a two way repeated measures analysis of variance was conducted with 'personal involvement' as a 'within pairs' effect.

Three such analyses were carried out. The first tested the experimental hypothesis (that the individual who was personally involved would be relatively more successful in the face-to-face condition, whilst the individual who was not so involved would be relatively more successful in the audio condition). Thus an interaction was predicted (and found) between medium and 'involvement'.

There was no hypothesis for the results in the video condition which had been included for exploratory purposes. Accordingly, two additional analyses of variance were introduced relating the results in the video condition to the results in the two primary conditions.

RESULTS

The means and standard deviations of the payoffs obtained by each side in each media condition are to be found in *Table 1*.

TABLE 1

Means and standard deviations of payoffs.

	<i>Face-to-face</i>		<i>Audio</i>		<i>Video</i>	
	<i>mean</i>	<i>S.D.</i>	<i>mean</i>	<i>S.D.</i>	<i>mean</i>	<i>S.D.</i>
A (consonant)	135.6	35.2	112.3	24.7	134.4	33.3
B (not consonant)	110.0	30.2	129.8	29.2	108.3	30.6

A large payoff represents a good outcome

The analysis of variance of these payoff scores (*Table 2*) shows that the data are consistent with the experimental hypothesis. There is a significant interaction between medium of communication (audio or face-to-face) and 'involvement' (personal opinion consonant with case required to argue or not).

TABLE 2

Analysis of variance of payoffs (Face-to-face and audio)

<i>Source of Variation</i>	<i>D.F.</i>	<i>M.S.</i>	<i>F</i>	<i>P</i>
Media	1	47.3	.31	n.s.
Error (b)	30	151.3		
Involvement	1	264.1	.15	n.s.
Involvement x media	1	7438.5	4.19	< .05
Error (w)	30	1777.2		

In the face-to-face condition A (consonant) is more successful than B (not consonant) ($t = 2.14$ $p < .05$ two tailed); in the audio condition B tends to be more successful than A ($t = 1.77$ $p < .1$ two tailed). A (consonant) is more successful in the face-to-face than in the audio condition ($t = 2.10$ $p < .05$ two tailed). B is more successful in the audio condition than in the face-to-face condition ($t = 1.86$ $p < .1$ two tailed).

The outcomes in the video condition (A mean 134.4 s.d. 33.3 and B mean 108.3 s.d. 30.6) are very similar to those in the face-to-face condition (compare *Table 1*). As in the face-to-face condition A is more successful than B ($t = 2.24$ $p < .05$ two tailed). A two way analysis of variance with repeated

measures including all three media conditions (*Table 3*) does not show a significant interaction of medium with 'involvement' ($.1 < p < .05$).

TABLE 3

Analysis of variance of payoffs (All media)

<i>Source of Variation</i>	<i>D.F.</i>	<i>M.S.</i>	<i>F</i>	<i>P</i>
Media	2	27.8	.18	n.s.
Error (b)	45	152.2		
Involvement	1	3122.5	1.68	n.s.
Involvement x media	2	5013.9	2.70	< .1
Error (w)	45	1860.5		

The non-significance of this interaction due to the close similarity of the video and face-to-face conditions conceals a difference between the video and audio conditions. A two way analysis of variance with repeated measures of the payoffs to each side in the video and audio conditions shows a significant ($p < .05$) interaction between medium and 'involvement' (see *Table 4*).

TABLE 4

Analysis of variance of payoffs (video and audio)

<i>Source of Variation</i>	<i>D.F.</i>	<i>M.S.</i>	<i>F</i>	<i>P</i>
Media	1	.88	.01	n.s.
Error (b)	30	160.3		
Involvement	1	295.4	.17	n.s.
Involvement x media	1	7601.7	4.44	< .05
Error (w)	30	1712.7		

The rating of the task on scales 'cooperative — uncooperative', 'competitive — uncompetitive', and 'person — impersonal' showed no effect either of medium of communication or of involvement condition. There was no difference between A and B as to the extent to which they rated their objectives as being opposed. The only significant effect was that A rated his own case as more reasonable than did B rate his (means: A 5.60 B 3.77 (on

seven point scales) $t = 5.30$ $p < .001$ two tailed). This difference is significant on each medium taken separately ($t = 4.63$ face-to-face $t = 2.50$ audio and $t = 2.15$ video all $p < .05$ two tailed). There was no effect of medium on the rating of the other participant. A rated his opponent as less successful, more cooperative, and more passive than did B (all $p < .05$ two tailed).

DISCUSSION

The results are consistent with the hypothesis that the individual whose personal views were consonant with the case he was required to argue would be relatively more successful in the face-to-face condition whilst the reverse would hold for the other person.

The result is compatible with Morley and Stephenson's basic argument that there is a relatively greater emphasis on the interpersonal considerations under face-to-face conditions than under telephone conditions. The results thus provide further evidence to support the usefulness of the distinction between interperson and interparty exchange.

At first sight the findings might appear to contradict those of Morley and Stephenson, whose 'strong' case was more successful under telephone conditions. In the present experiment the side with the 'strength of his convictions' is found to be more successful under face-to-face conditions. The apparent conflict arises from different meanings for the term 'strength'. Strength of case may thus be a misleading term with which to describe such results. The important difference between the two sides which interacts with medium appears to be simply the extent to which they are dependent on interpersonal or interparty considerations.

The data from the post experimental questionnaire suggest that the main difference between A and B was in the perceived reasonableness of their case. As the Bs were drawn from the same population as their partners it is likely that they would have agreed to a large extent with their partner's ranking of the items. This is borne out by the considerable agreement as to the ranking between the As (Kendall coefficient of concordance $W = .397$ $p < .001$). It is therefore probable that B was compelled to lie, so weak was his case. Deception might be easier under audio conditions than under face-to-face conditions with the removal of certain nonverbal cues to deceit (Exline *et al.* 1961, Ekman and Frisen 1969). If so, the results could be simply explained. This may be a viable interpretation of the results of the present experiment taken in isolation, but under such an interpretation, the results of this experiment run directly counter to those of Morley and Stephenson (1969). They found that the 'weak' case (presumably the side more dependent on successful deception) was more successful in face-to-face conditions (the opposite of the result obtained here). The element of deceit may nonetheless be relevant to the analysis of the results. B saw his position as unreasonable and was seen by A as passive, cooperative and unsuccessful – a difficult position from which to bargain. Such a position would appear to require a

very Machiavellian approach if a successful outcome is to be obtained. Evidently such an approach was facilitated by the use of the telephone medium.

It is interesting to compare these hypothesised effects of medium on the balance between interperson and interparty considerations with the concepts used by Christie and Geis, 1970 in their studies of Machiavellianism. Christie and Geis suggest that the difference between high Machs and low Machs which accounts for the former's greater success in bargaining tasks, is the ability to be emotionally detached from the situation and the norms of interpersonal behaviour so as to concentrate on the aspects which objectively are most relevant to success. Perhaps the personality concept of Machiavellianism not only varies between people, but within people according to the situation in which they find themselves. The concepts of Machiavellianism may be useful outside the realm of the study of individual differences.

The results suggesting that the video condition was more similar to the face-to-face condition than to the audio condition are consistent with the hypothesis that it is the lack of the visual channel rather than the isolation inherent in telecommunications conditions that is the basis for the effects. The similarity of the outcomes in the video condition to those in the face-to-face condition in a situation in which the audio condition differs from the face-to-face condition, holds out expectations of useful applications for visual telecommunications.

Finally, there is a potentially important implication for the methodology of laboratory studies of negotiation. Comparison of these results with Morley and Stephenson's experiment suggest that the results of laboratory studies of negotiation (and the relationships between key variables) can be affected by whether or not subjects personal views are or are not consonant with the case they are asked to argue. Laboratory studies of negotiation typically assign subjects at random to roles which may or may not be consonant with their personal opinions (e.g. Druckman 1968, Bass 1966). The implications of this procedure merit some attention.

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BIOGRAPHICAL NOTE

JOHN SHORT took a first degree in Psychology at Cambridge University in 1970. Since then he has worked at the Joint Unit for Planning Research, University College London on a project designed to assess the effectiveness of present and future systems of telecommunication. During this time he completed a Ph.D. thesis entitled 'The effects of medium of communication on two person conflicts'.