Interpersonal Compatibility and Workgroup Performance

RAYMOND E. HILL

Schutz hypothesized in his theory of interpersonal relations that more interpersonally compatible groups will exhibit greater productivity. Until recently, this proposition has remained largely untested for workgroups. The present study examined 22 teams of systems analysts working at the corporate headquarters of a large oil company. Interpersonal compatibility was measured by using Schutz's standard instrument, and productivity measurements utilized paired comparisons. Ranks on the compatibility and productivity measures of paired teams were then compared. The hypothesis was not supported; in fact, the data strongly suggest the opposite notion, that more incompatible groups are likely to be judged as more productive. Reciprocal and interchange incompatibilities were found to be particularly associated with the higher-rated groups. This result suggests that moderate tension within groups, not interpersonal harmony, leads to productivity; however, task interdependence could be an important moderating variable and should be incorporated into future studies.

This study attempts to test Schutz's (1958, 1966) hypothesis that interpersonal compatibility among workgroup members leads to more effective goal achievement. Schutz suggests that individuals tend to develop a stable interpersonal style that can be characterized in terms of three basic interpersonal needs of inclusion, control, and affection, which are theorized to be generally predictive of the outcomes of interpersonal relations. Schutz also developed a concept of interpersonal compatibility that permits specification of the degree to which two or more persons' styles

Raymond E. Hill is associate professor of organizational behavior and industrial relations, University of Michigan, Ann Arbor.

(patterns of needs) complement and reinforce each other, and he hypothesized the following (1966, p. 128):

> *If the compatibility of one group,* h, *is greater than the compatibility of another group,* m, *then the productivity goal achievement of* h *will exceed that of* m.

In addition, Schutz developed an instrument, referred to as FIRO-B (Schutz, 1957), to test hypotheses regarding interpersonal behavior. A variety of studies have used the FIRO-B instrument to test the compatibility postulate in groups and dyads; few, however, are oriented toward work in its usual organizational sense. For example, positive outcomes have been associated with more compatible members in such settings as group therapy (Gross, 1959; Sapolsky, 1965), love relationships (Centers & Granville, 1971; Kerckhoff & Davis, 1962), and student-teacher relations and student learning (Hutcherson, 1963). In addition, Reddy (1972 a, b) found that moderate incompatibility was related to increased self-actualization in sensitivity training groups, a finding supported by Harrison (1965) and Harrison and Lubin (1965).

With regard to work behavior, Reddy and Byrnes (1972) and Schutz (1958, 1966) found interpersonal compatibility to be positively related to effectiveness in experimental problem-solving groups. Compatibility on the interpersonal dimensions of control and affection was found to be particularly related to problem-solving competence. In a recent study of worker dyads in industry, however, Underwood and Krafft (1973) concluded that their data did not support the FIRO compatibility postulate. In fact, the significant relationships indicated that *incompatibility* was more likely to be associated with work effectiveness.

The evidence to date regarding the compatibility postulate for workgroups and dyads thus appears to be somewhat conflicting. Experimental studies have supported Schutz's hypothesis, but empirical examination of natural groups has been disconfirming and, if anything, has supported its antithesis (that *incompatibility* leads to work effectiveness). Underwood and Krafft (1973) concluded that further study in work settings is needed to specify more fully the limits of the compatibility postulate. The present study is an attempt at such additional testing, but differs from the Underwood and Krafft study, in that it focuses on groups rather than on worker dyads.

METHOD

The FIRO Instrument

The FIRO-B instrument measures the intensity of the interpersonal needs of inclusion, control, and affection. *Inclusion* refers to the need for belongingness and interaction. *Control* indicates the need for power and influence, and *affection* refers to the need for intimacy and friendship. Each is broken down into two scales: one indicating the need to *express* (symbolized by e); the other, the need to *receive* (symbolized by w).

Interpersonal compatibility between two persons is calculated by combining their scores according to particular formulae (Schutz, 1966). The major types of compatibility are "originator compatibility," "interchange compatibility," and "reciprocal compatibility." For any given need, *originator compatibility* reflects the degree to which one person's excess of a need to express or to receive is balanced by the other person's excess of a need to express or receive; e.g., if one party's e score is greater than his w score, the other party's w score should be greater than his e score.

Interchange compatibility refers to the degree in which two persons have similar total levels of need in a given area. Two persons with similar levels of need for interpersonal activity in a given area, e.g., inclusion, will be more compatible than those whose scores are radically different. Schutz (1966, p. 112) suggests that interchange compatibility is likely to be especially relevant for groups larger than two, where an atmosphere or "climate" can develop based on activity level in the group. *Reciprocal compatibility* indicates the degree to which one party's need to express and receive is the reverse of the other party's. Reciprocity increases as each party's need to express is at the same level as the other's need to receive; reciprocal compatibility thus results when one person's e is equal to the other person's w and vice versa.

The formulae and symbols representing dyadic compatibilities are shown below in expressions (1), (2) and (3).

(1) originator compatibility $= oKij = (e_i - w_i) + (e_j - w_j)$

(2) interchange compatibility $= xKij = |(e_i + w_i) - (e_j + w_j)|$

(3) reciprocal compatibility $= rKij = |e_i - w_j| + |e_j - w_i|$

where: e = express, or initiation subscale
w = want, or receive subscale
i, j = subject i and subject j

In the present study, the absolute value of oKij was used so that it could be summed with the other two compatibility types to form total

TABLE 1.
Summary of Compatibility Types and Areas

		AREAS OF COMPATIBILITY			
		I	C	A	Row Sums
TYPES OF COMPATIBILITY	r	rKI	rKC	rKA	overall rK
	o	oKI	oKC	oKA	overall oK
	x	xKI	xKC	xKA	overall xK
	Column Sums	overall KI	overall KC	overall KA	K total (sum of nine components)

group compatibility. Thus, each type of compatibility assumes a value from 0 (compatible) to 18 (*in*compatible).

Table 1 is patterned after Schutz (1966, p. 115) and summarizes nine possible compatibility combinations, where each of the three types are calculated for each of the three needs. In addition, the sum of each column represents the overall compatibility for a given need.

The measure of dyadic compatibility used in this study is the sum of the nine separate components, a convention advocated by Schutz (1966). The measure of total group compatibility is thus simply the average of all possible dyadic compatibilities for the group. The stability of the compatibility measures was not estimated in this study, but the Underwood and Krafft (1973) study indicated test-retest correlations of .54 and .60 for originator and interchange compatibility.

Subjects

The subjects in this study were all systems analysts and members of the computer services department at the corporate headquarters of a large oil company. They worked primarily in project teams designing large systems. Twenty-two teams, varying in size from eight members to a few teams of two members, were studied. In all cases the teams had recently completed the project around which group performance was evaluated.

Design

The 22 teams were selected so that they formed 11 pairs such that each pair had one member who had worked on both teams. Each common

member was asked to judge which team was the more productive of the two, where productivity was defined as the amount of work accomplished per unit of time. In addition to that comparative judgment, each common member was asked to make categorical judgments, on a Likert-type scale, indicating the productivity of each project team. Thus a subjective estimate was obtained as to the distance between each pair on a productivity scale. No reliability estimates were made on either the comparative or categorical judgments.

FIRO-B scores were obtained on the members of each project team and combined into the total compatibility index. Thus relative compatibility could be compared with relative performance for each of the 11 pairs of teams. Each project had lasted at least one year, to ensure that the effects of compatibility on performance would have time to operate.

The hypothesis, which is based on the FIRO theory, is as follows:

> *When the compatibility of team* x *is greater that the compatibility of team* y, *then the productivity of team* x *will be greater than the productivity of team* y.

ANALYSIS AND RESULTS

Table 2 shows compatibility and performance indexes as well as relative order relationships for each pair of project teams. Overall performance was scaled such that 1 represents low productivity and 10 represents high productivity.

The hypothesis suggests that, for each pair, the order relationship on compatibility should match the order relationship on productivity. If compatibility is higher for team x than for team y, then productivity should also be higher for team x than for team y. A plus sign has been assigned to a "match" on order relations and a minus sign has been assigned to a "mismatch." Under the null hypothesis (no relation between compatibility and performance), the probability of a match would equal the probability of a mismatch, or in other words, both probabilities would equal .5. Thus the series of pluses and minuses in Table 2 was tested for statistical significance using the nonparametric sign test based on the binomial distribution with $p = q = .5$ (Siegel, 1956). Nonparametric procedures were designed into the study, since both the productivity criterion and the Guttman scaled FIRO-B scores are ordinal measures.

The significance level for the sign test was set at .05. A one-tailed test was used since the hypothesis is directional; for the test to support the hypothesis, there should be a preponderance of plus signs, or "matches." Inspection of Table 2 reveals that the hypothesis was not supported, for there was a predominance of negative signs. If any relation exists at all, it appears that incompatibility is more likely to be associated with

TABLE 2.
Order Relations on Compatibility and Performance for 11 Project Pairs

Pair	Team Symbol	Team Size	Compatibility Index	Performance Rating	Order* Relation on Compatibility	Order Relation on Performance	Match = + Mismatch = −
1	A	4	38.7	7	A > B	A < B	−
	B	5	46.0	8			
2	C	5	41.0	6	C < D	C > D	−
	D	5	37.4	4			
3	E	5	38.0	9	E > F	E > F	+
	F	5	41.5	6			
4	G	5	40.4	5	G > H	G < H	−
	H	2	50.0	8			
5	I	3	39.2	4	I > J	I < J	−
	J	2	51.7	8			
6	K	3	38.9	4	K > L	K < L	−
	L	3	41.4	6			
7	M	2	52.0	8	M < N	M > N	−
	N	3	39.5	6			
8	O	4	38.7	6	O < P	O > P	−
	P	7	32.1	4			
9	Q	5	50.6	7	Q < R	Q > R	−
	R	8	42.0	5			
10	S	6	38.3	8	S > T	S > T	+
	T	5	46.4	4			
11	U	4	36.9	5	U > V	U < V	−
	V	5	45.0	6			

* Recall that lower scores represent higher compatibility.

productivity. In fact, if this latter relationship had been the object of the study, it would have been significant at $p < .04$.

In addition, each of the nine separate compatibility components was examined in relation to performance for each group. Again, there tended to be a preponderance of negative signs in most cases, although none of the separate components was particularly significant from a statistical

TABLE 3.
Overall Types of Compatibility in Relation to Group Performance

Pair	Team Symbol	Performance Rating	Overall Reciprocal Compatibility	Sign	Overall Originator Compatibility	Sign	Overall Interchange Compatibility	Sign
1	A	7	15.9		9.9		12.9	
	B	8	19.0	−	12.8	−	14.2	−
2	C	6	17.8		10.8		12.4	
	D	4	15.2	−	11.4	+	10.8	−
3	E	9	16.6		8.6		12.8	
	F	6	21.8	+	7.8	−	11.9	−
4	G	5	17.4		11.4		11.6	
	H	8	22.0	−	10.0	+	18.0	−
5	I	4	15.9		13.3		10.0	
	J	8	20.5	−	14.7	−	16.5	−
6	K	4	14.7		13.0		11.2	
	L	6	16.1	−	10.7	+	14.6	−
7	M	8	20.6		12.0		19.4	
	N	6	15.6	−	10.2	−	13.7	−
8	O	6	16.1		11.5		11.1	
	P	4	13.0	−	11.1	−	8.0	−
9	Q	7	21.2		12.2		17.2	
	R	5	17.4	−	12.4	+	12.2	−
10	S	8	16.4		10.8		11.1	
	T	4	18.7	+	12.8	+	14.9	+
11	U	5	15.0		8.9		13.0	
	V	6	20.6	−	12.6	−	11.8	+
			9(−) 2(+) $p < .04$		6(−) 5(+) $p < .7$		9(−) 2(+) $p < .04$	

standpoint. A similar pattern and result applied to the area compatibilities (column sums in Table 1); however, a more pronounced pattern emerged when the overall compatibility types (row sums in Table 1) were examined in relation to performance. As illustrated in Table 3, overall reciprocal and interchange compatibilities exhibit stronger negative relations to performance ($p < .04$) and seem to underlie the negative outcome for the total compatibility measure. It appeared that the nine separate compatibility scores had additive effects when combined into overall compatibility types.

DISCUSSION

Interpersonal compatibility and workgroup productivity as defined and measured in this study are apparently not related in the manner that Schutz hypothesized. It should be noted, however, that the reliability of the measures used was not directly assessed: the conclusion could thus be equivocal. Indirect estimates of compatibility reliability were cited from the Underwood and Krafft study, but those estimates are rather small and they are not indicative of high stability. Comparative judgments were used to assess group productivity, on the hypothesis that they would be more reliable than categorical judgments. Nevertheless, it was difficult to obtain a reliability measure (consistency across judges) on performance: due to the autonomy with which groups operated, few of the persons involved had the knowledge to make accurate relative performance judgments.

The present study does attempt to test the FIRO compatibility postulate in a natural workgroup setting and it focused only on groups with a problem-solving orientation (systems analysts). The data tend to support that part of the group problem-solving literature which posits a link between heterogeneous psychosocial composition and group performance. Smith (1971), Hoffman and Maier (1961), and Hoffman (1959) conclude that problem solving requires members who constructively stimulate one another. The data from the present study, and from the Underwood and Krafft (1973) study, suggest similar conclusions regarding the interpersonal composition of the group. In addition, the present data point to reciprocal and interchange incompatibilities as being associated with the higher-rated group in each pair, and it appears in general that the separate components of compatibility combine together to produce an overall impact. Schutz previously hypothesized that interchange compatibility

should have particular significance for groups because of its possible relation to "group atmosphere" (Schutz, 1966, p. 112). One aspect of atmosphere is the activity level of the group, and Schutz speculated that an individual's satisfaction depends on how well his or her needs match the group's needs. Yet present results indicate the opposite of Schutz's hypothesis. Thus the question raised by the present research involves the conflict between the negative outcome of this study and the positive results obtained by Reddy and Byrnes (1972) in an experimental group problem-solving exercise.

Perhaps the explanation lies in the differences between tasks. The Reddy and Byrnes study utilized the Lego man exercise, which involves face-to-face interaction throughout the task and a high degree of interdependence. The task in the present study involved considerably less interdependence. In addition, the members would go for several days without face-to-face contact as a group. Competitive impulses aroused by incompatibilities may thus have been channeled into individual task accomplishment in the present research, whereas in the Reddy and Byrnes experiment, competitive incompatibilities were more likely to find expression in the form of destructive aggression by the members against each other. Thus, in a highly interdependent, face-to-face task situation, higher compatibility would be expected to lead to higher task accomplishment, a contention which was supported also by Schutz (1966). With a less interdependent task, where group performance is more equivalent to the sum of individual contributions and synergistic gains are not possible, incompatibility may lead to higher total accomplishment through the channeling of energy into individual efforts. This explanation posits that the group members in the present study were coping with aggressive impulses through work—and the fact that reciprocal incompatibility was an important variable would seem to add plausibility to this hypothesis, since aggression is likely to be associated with reciprocal incompatibilities. The author therefore strongly recommends that future studies of compatibility and performance incorporate task interdependence as an intervening variable.

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