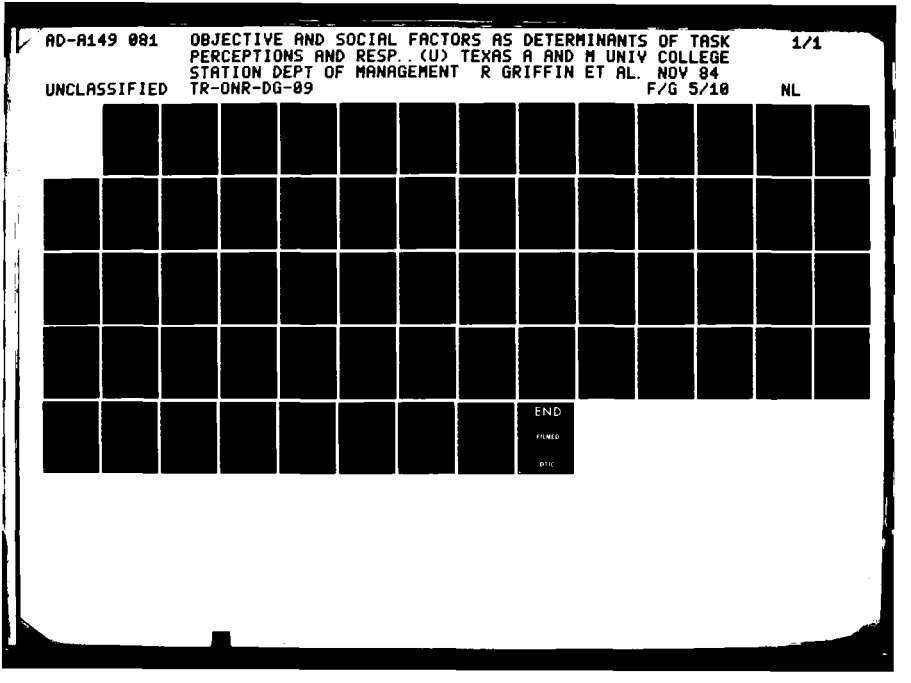
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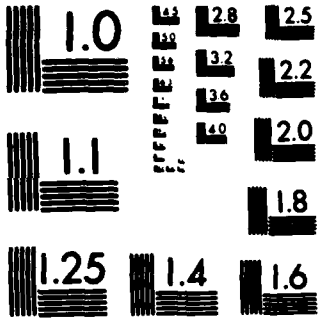

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Organizations As Information Processing Systems

Office of Naval Research Technical Report Series

Objective and Social Factors as Determinants of Task Perceptions and Responses: An Integrative Framework and Empirical Investigation

Ricky Griffin
Thomas Bateman
Sandy Wayne
Thomas Head

TR-ONR-DG-09

November 1984

Department of Management
Texas A&M University

JAN 1 0 1985

Richard Daft
and
Ricky Griffin
Principal Investigators

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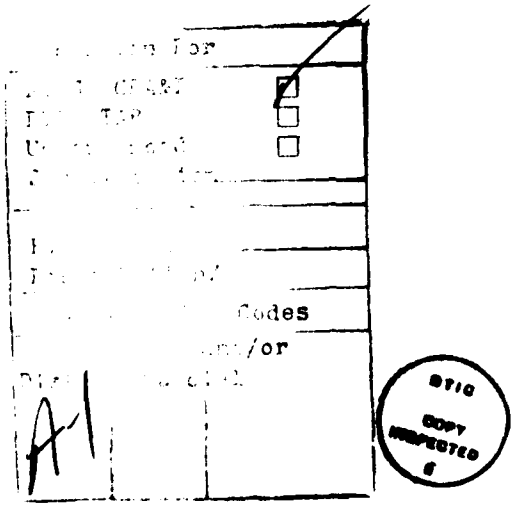

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Richard L. Daft and Ricky W. Griffin
Co-Principal Investigators

Department of Management
College of Business Administration
Texas A&M University
College Station, TX 77843

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The purpose of this study was to test the relative efficacy of the task attributes model of task design, the social information processing model of task design, and an integrated framework derived from the two. A complex laboratory study manipulating objective task properties, social information,

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and changes in both objective task properties and social information was conducted to test the three models. Results suggested moderate support for the social information processing model, strong support for the task attributes model, and the strongest support for the integrated framework. Implications for future theory and research are discussed.

Objective and Social Factors as Determinants Of Task Perceptions and Responses: An Integrative Framework and Empirical Investigation

The study of the design of work has come to occupy a prominent position in organization science over the last decade and a half. Building from the pioneering work of Turner and Lawrence (1965), Hulin and Blood (1968), and Hackman and Lawler (1971), task design researchers have focused considerable attention on task perceptions and the relationships between these perceptions and various affective and behavioral responses. Moreover, task design issues continue to be addressed in the pages of organizational science journals with a regular frequency.

At present, there are two countervailing theoretical perspectives dominating the area. One perspective, which has grown from the research cited above, is usually referred to as the task attributes model. This model suggests that task perceptions and responses are primarily determined by objective facets of the individual's job (cf., Hackman & Oldham, 1976). The alternative perspective, presented by Salancik and Pfeffer (1978), argues that task perceptions and attitudes are instead socially-constructed realities that evolve from informational cues in the workplace. This perspective is generally called the social information processing model.

The purpose of the study reported here was to test the efficacy of each of the two models as well as that of an integrated framework derived from the two divergent perspectives. First, the literature pertaining to each of the two models will be briefly reviewed. The integrated framework will then be described. The results of a complex

laboratory study designed to test the three models will be presented next. Finally, implications for future theory and research will be discussed.

Literature Review

Several comprehensive literature reviews of each of the two dominant perspectives are readily available. For example, the task attributes literature is reviewed by Griffin (1982), Hackman and Oldham (1980), and Roberts and Glick (1981). Similarly, the social information processing literature is reviewed in Blau and Katerberg (1982) and Thomas and Griffin (1983). The reviews that follow, then, will be brief. In particular, they are intended to summarize only the most salient aspects of each model in order to form a sound basis for what will follow.

Task Attributes Model

The task attributes model assumes that jobs can be described in terms of a set of predetermined objective attributes, dimensions, or characteristics. As noted earlier, this school of thought grew from the work of Turner and Lawrence (1965), Hulin and Blood (1968), and Hackman and Lawler (1971). Hackman and Oldham (1976, 1980) have recently codified this view into what they call the Job Characteristics Theory.

The Job Characteristics Theory suggests that jobs can be adequately described and characterized by five core dimensions: skill variety, task identity, task significance, autonomy, and feedback. The presence of high levels of these dimensions in jobs is presumed to lead to high levels of employee satisfaction, motivation, and performance,

and low levels of absenteeism and turnover. Individual differences are presumed to influence the general pattern of relationships as well.

The "standard" approach to testing various aspects of the theory has been to measure incumbent perceptions of the dimenensions and to then statistically relate those perceptions to the various outcome measures. To date, the theory, or at least parts of it, have been tested in laboratory experiments (cf., Umstot, Bell, & Mitchell, 1976), field surveys (cf., Hackman & Oldham, 1976; Sims & Szilagyi, 1976), and field experiments (cf., Orpen, 1979). Most studies have found results generally supportive of the theory, although results involving performance as an outcome variable have been less consistent (cf., Griffin, Welsh, & Moorhead, 1981).

In recent years, however, the Job Characteristics Theory and the theoretical tradition it represents have come under attack on a number of fronts. Aldag, Barr, and Brief (1981) have cited measurement deficiencies. Roberts and Glick (1981) review numerous studies dealing with the task attributes perspective and conclude that "there are substantial inconsistencies in the task design area across the theory, operationalizations, analyses, and interpretations" represented by these studies. They also call for greater attention to theory development and study design (p. 211).

The Social Information Processing Model

At least partially in response to this emerging body of criticism of the Job Characteristics Theory, the social information processing model was presented by Salancik and Pfeffer (1978) as an alternative view. Pfeffer (1981, p. 10) provides perhaps the best summary of the model:

> First, the individual's social environment may provide cues as to which dimensions might be used to characterize the work environment...Second, the social environment may provide information concerning how the individual should weight the various dimensions--whether autonomy is more or less important than variety of skill, whether pay is more or less important than social usefulness or worth. Third, the social context provides cues concerning how others have come to evaluate the work environment on each of the selected dimensions...And fourth, it is possible that the social context provides direct evaluation of the work setting along positive or negative dimensions, leaving it to the individual to construct a rationale to make sense of the generally shared affective reactions.

Hence, the SIP model assumes that perceptions of the task and affect are at least partially constructed as a function of social cues in the workplace.

The initial presentation of the SIP model sparked a great deal of enthusiasm and research. The first studies were conducted in the laboratory. The typical design was to vary both objective task properties and the content of social cues provided by other "workers" (cf., O'Reilly & Caldwell, 1979; Weiss & Shaw, 1979; White & Mitchell, 1979; O'Connor & Barrett, 1980). In general, the authors of these studies concluded that social cues played a major role in shaping task perceptions and/or attitudes about the task.

Cross-sectional field surveys (cf., Oldham, & Miller, 1979; O'Reilly, Parlette, & Bloom, 1980) have also provided at least indirect support for this perspective. In addition, one field experiment (Griffin, 1983) has tested the SIP model. In that study, first-line supervisors were trained to provide positive social cues to their subordinates about their jobs. The effects of those cues on task perceptions and reactions were compared independently and interactively with the effects of objective task changes. Results indicated that the social cues were just as powerful as the objective changes in altering perceptions and attitudes.

As with the task attributes model, however, criticisms of the SIP model have recently begun to emerge (cf., Blau & Keterberg, 1982; Thomas & Griffin, 1983). Among these criticisms are the facts that SIP effects have been more clearly demonstrated in laboratory studies than in the field and that there are still many unanswered questions as to the processes involved in social-reality construction. For example, Thomas and Griffin (1983, p. 679) note from their review that "none of the 10 studies serves even minimally to refute the task attributes view. Further, none of the 10 studies provides specific and exact support for the SIP framework. In fact, the majority of the research reviewed here offers more support for an overlapping viewpoint than for either of the other models." Thus, there is a clear need for both theoretical articulation and empirical assessment of alternative viewpoints that incorporate both task attributes and social information processing elements.

An Integrated Framework

As a starting point in developing an integrated framework of task perceptions and reactions, it is instructive to first examine selected earlier studies in more detail. First, we will consider some of the initial task attributes studies with social implications. The study reported by Hackman and Lawler (1971), for example, implicitly recognized the importance of interpersonal relationships in organizations. While most subsequent studies have focused on the so-called "core" dimensions such as autonomy and variety, the original formulation also included one dimension labeled friendship opportunities and another called dealing with others. Hence, social processes were not altogether ignored.

In another early study, Bishop and Hill (1971) conducted a field experiment to determine the effects of objective job changes. An unexpected finding was that satisfaction declined for a group of workers whose jobs were not changed. Hence, some set of forces beyond the objective task conditions were evidently operative. In a reanalysis of the original Job Characteristics Theory data, (Hackman & Oldham, 1976), Oldham and Miller (1979) found that individuals reported lower levels of satisfaction if they perceived their jobs to be less complex than those of comparison others' jobs. A direct test of the implications of these findings (Oldham, Nottenburg, Kassner, Ferris, Fedor, & Masters, 1982) found that 75% of the participating employees used referents for job comparison purposes. Thus, even studies undertaken from the task attributes perspective have either directly or indirectly reflected the role of social processes in the formation of task perceptions and/or reactions.

An analysis of selected SIP-based studies is equally enlightening. In one of the first studies, for example, White and Mitchell (1979) concluded that "Employee perceptions...are a joint function of objective task characteristics and social cues" (p. 8). While O'Reilly and Caldwell (1979) found the strongest effects for social cues, objective task properties also affected task perceptions and satisfaction. Similar findings were reported by Weiss and Shaw (1979) as well. Even in light of these equivocal results, however, theorists have tended to place increased credence in the SIP view and to continue to call into question the efficacy of the task attributes perspective. For example, O'Reilly and Caldwell (1979) argue that "The present study raises the question of the extent to which objective task

characteristics make a difference or if, as suggested by Salancik and Pfeffer (1978), job characteristics are socially constructed realities" (p. 163).

The one reported field experiment testing the SIP model also provides equivocal support for the relative merits of each model (Griffin, 1983). In that study, social cue changes and objective job changes were found to each have main effects on individual task perceptions and satisfaction. There were also several significant interactions between cue and task changes. Only productivity was clearly affected by one manipulation (task changes) but not the other. Once again, then, studies developed with the goal of testing the SIP model have generally found support for the task attributes model as well.

The conclusions of SIP researchers notwithstanding, it appears to be the case that task perceptions are, in fact, partially determined by objective task properties and partially determined by social cues in the workplace. Clearly, then, there is a need for (1) an integrative framework that includes both objective and social determinants of task perceptions, and (2) research to assess the efficacy of each perspective. Figure 1 summarizes the general integrative framework used to guide the study reported here.

Insert Figure 1 About Here

The arrow labeled with the number 1 represents the basic task attributes view. The assumption of this view, as noted earlier, is that objective facets of the workplace influence perceptions of

specific task attributes and affect toward specific work-related elements (e.g., job satisfaction).

The SIP model is indicated by the arrow labeled with the number 2. This view suggests that social information processing in the work environment influences perceptions of generalized task attributes and affect toward generalized work-related elements (e.g., general or overall satisfaction).

The arrow labeled with the number 3 represents the general integrative framework that draws from both perspectives. Such a general framework would suggest that both objective facets of the work environment and social information processing in the work environment combine to influence perceptions of both specific task attributes and perceptions of generalized task attributes, as well as specific and generalized task affect.

The framework is, at this point, of necessity presented in very general terms. That is, the basic premise is that objective and social processes both affect perceptions and attitudes. No attempt is made to specify precisely how and in what fashion such joint effects operate. There are, however, several kinds of questions that such a framework might eventually be capable of addressing.

One category of questions relates to the impact of conflicting cues from different stimuli. For example, what are the effects of a "good" task (i.e., one that is enriched, challenging, motivating, etc) and negative informational cues? The task attributes model would predict positive task perceptions, the SIP model would predict negative task perceptions, while the integrative framework might predict intermediate task perceptions (i.e., that the positive and negative

information would cancel). Similarly, can one source serve to reverse the impact of another? For example, can positive social cues offset the dysfunctional impact of a poorly designed task, and can a good task offset the effects of negative social cues?

Second, when the information from both the task and the social environment are consistent, are the effects greater than when information comes only from a single source? For example, do a good task and positive social cues combine to yield more positive perceptions than either a good task or positive cues alone? Similarly, does a poorly designed task combined with negative cues result in more diminished perceptions than either stimuli working alone?

The third set of questions relate to the potential impact of situational and/or personality variables on the formation of task perceptions. For example, people who are highly authoritarian might place great weight on social cues from a superviser, whereas someone with a low degree of authoritarianism might be predisposed to respond less to social information than to objective elements of the job. Other key variables might include locus of control, self-monitoring, experience, technology, organization design, group dynamics (i.e., cohesion, norms, etc), and leader behavior.

The final set of questions pertain to the dynamics of change. What, for example, are the effects when task conditions are changed (in either direction), when social cues change (in either direction), and when both are changed (in either consistant or inconsistent directions? Does one stimulus have an immediate effect, or do both require a longer time period to influence perceptions?

To answer all of these questions and their derivatives will require a major program of research. As a starting point, a complex laboratory experiment was designed to provide some general insights into the overall processes involved and to begin to answer some of the specific questions indentified above. The basic issues the study attempts to address relate to various combinations of objective task properties and social cues and to changes in both objective task properties and social cues.

Table 1 summarizes a number of predictions about task perceptions and satisfaction derived from each of the three models. For the task

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Insert Table 1 About Here

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attributes model, the predictions relate task perceptions and satisfaction to different levels of enrichment, without regard to social cues. Similarly, the social information processing predictions assume that perceptions and satisfaction flow from social cues and are not affected by objective task properties. Finally, the integrated model predictions are derived from the assumption that both objective task properties and social cues influence perceptions and satisfaction. It should also be noted that the predictions derived form the integrated model are not exhaustive. Rather, they reflect those aspects of the model tested in this study.

Method

Overview

The study manipulated two independent variables: task design and social cues. Changes in these variables were also manipulated. Thus,

each participant was exposed to a change (or no change) in tasks, as well as a change (or no change) in social cues.

The task consisted of processing MBA applications utilizing enriched or unenriched procedures. The basic task was developed from the one described used and by O'Reilly and Caldwell (1979). Subjects worked on the task for two consecutive one-hour periods. In the first period, subjects worked on the task using either the enriched or unenriched prodecures, and in the second period either switched to the alternative procedure or continued working on the task using the original procedure. Consequently, the objective task conditions consisted of the following four sequential combinations: enriched-enriched, unenriched-unenriched, enriched-unenriched, and unenriched-enriched.

Positive or negative social cues in both verbal and written forms were also provided at the beginning of both work periods. Thus, the social cues were of the following four sequential combinations: positive-positive, negative-negative, positive-negative, and negative-positive. These combinations of task design and social cue sequences result in a 4x4 factorial design. For reasons to be explained later, however, the design was not fully crossed. Dependent variables were measured by questionnaires completed by all participants after each of the work periods. Hence, final task perceptions and affective reactions, as well as changes in those responses, could be assessed as a function of changes in tasks and in social cues.

Pretest

A laboratory pretest was conducted in order to determine whether the procedures developed for processing MBA applications in the two task conditions were perceived as enriched and unenriched. In the enriched condition the procedures were designed to maximize the task dimensions of identity, significance, skill variety, autonomy, and feedback. On the other hand, the procedures in the unenriched condition were designed to minimize the same task dimensions. Social cues were not provided in the pretest.

Participants and Procedure. Participants for the pretest were 40 undergraduate students recruited from business classes at a large university in the Southwest. They were paid $5 for one hour of their time. Participants were randomly assigned to one of the two task conditions (enriched or unenriched, to be described in detail for the primary experiment), and worked individually in a large room processing MBA applications. Before performing the task, procedures corresponding to their task condition were explained. After working on the task for 45 minutes, subjects completed a questionnaire measuring specific and general task perceptions and affective responses.

Measures. Specific task perceptions were measured by the Job Diagnostic Survey (JDS) developed by Hackman and Oldham (1975). General task perceptions were measured with the Semantic Differential developed by Scott (1967). The Semantic Differential includes 25 7-point items anchored by contrasting adjective pairs (e.g., the task was "extremely pleasant" to "extremely unpleasant"; "extremely varied" to "extremely routine"). The rationale for including this measure stems from the basic assumptions of the SIP viewpoint. These

assumptions suggest that the definition, weighting, and evaluation of relevant task dimensions varies across settings. Hence, it seemed appropriate to include a general assessment scheme in order to gain overall impressions of the task.

Affective responses were measured with the short version of the Minnesota Satisfaction Questionnaire (MSQ) developed by Weiss, et al. (1967). The MSQ is a 20-item instrument providing indices of intrinsic, extrinsic, and overall satisfaction. A final measure provided a more specific index of satisfaction with the job. Responses to both the MSQ and job satisfaction measures were on 5-point scales.

Results. Table 2 provides variable means, standard deviations, and reliability estimates (Cronbach's Alpha) for the total pretest sample. Also included in Table 2 are F values for mean differences

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Insert Table 2 About Here

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between the enriched and unenriched task conditions. As indicated by the means, all task dimensions were significantly higher in the enriched task condition. Except for extrinsic satisfaction, the differences between the two groups were also significant on all other dimensions. The lack of a significant effect for extrinsic satisfaction may be due to the fact that external rewards were not provided during the process of completing the task but were provided only at the conclusion of the pretest. Hence, the results provide clear support that the procedures developed for processing the MBA applications in that the two task conditions were significantly different in their influences on task perceptions and affective responses.

Study Design

The experiment was designed to assess the efficacy of the task attributes model, the social information processing model, and an integrated model combining the other two approaches. As stated earlier, the independent variables consisted of change (or lack of change) in task conditions (enriched and unenriched) and in social cues (positive and negative). The dependent variables of interest were task perceptions, affective responses, and changes in both perceptions and affect.

Subjects were required to process MBA applications for two consecutive work periods. Depending upon the experimental condition, subjects used either one procedure (enriched or unenriched) in both periods for processing applications or used each of the two procedures by changing from one to the other. Similarly, social cues were either positive or negative and either changed or did not change from work period to work period. Measures of task perceptions and affective responses were obtained following each work period. Consequently, two measures were obtained from all subjects.

Figure 2 summarizes the study design. There were four possible task design sequences: enriched-unenriched, unenriched-unenriched,

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Insert Figure 2 About Here

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enriched-enriched, and unenriched-enriched. These were also four possible social cue sequences: positive-negative, negative-negative positive-positive, and negative-positive.

Four cells of the experimental design were not used due to the contradictory nature of providing two types of cues (positive and negative) when task procedures remained the same (no change) for both work periods. That is, there appeared to be no realistic way to simulate those situations in the laboratory. These unrealistic combinations, then, were blocked out of the design. The absence of responses in these cells was taken into consideration in the data analyses.

Participants

Participants were 200 undergraduate business students at a major university in the Southwest. They voluntarily participated in the experiment and were paid $10 for two hours of their time.

Procedure

Participants reported to a learning laboratory in groups which ranged in size from 2 to 6 persons. Each group was randomly assigned to one of the experimental conditions. Participants were told that the purpose of the study was to examine procedures used in processing MBA applications. They worked independently in one large room.

Two graduate students (one male and one female) were randomly assigned to conduct the laboratory sessions. After stating the purpose of the study, the experimenter described the procedures corresponding to the experimental condition (enriched or unenriched) to be used in processing the MBA applications. Following the description of the task procedures, subjects read a written job description. The job description contained social cues corresponding to the experimental

condition (positive or negative) concerning the nature of the task. In addition, a listing of fictitious statements containing positive or negative cues concerning the nature of the task were provided. Subjects were told that those statements had been made by others who had worked on the task previously. After reading both the job description and the statements, the experimenter also provided positive or negative verbal cues concerning the general nature of the task. The written and verbal cues provided during each given work session were all consistent. (That is, they were all positive or all negative.)

Participants worked on the task for 45 minutes with the experimenter present in the room. At the end of the work period, subjects were asked to complete a questionnaire based on the task that they had been performing. Next, subjects performed the task using either the alternative procedures or continued performing the task using the original procedures (no change). In the no change conditions, the experimenter provided additional verbal cues consistent with the original cues and requested that subjects continue working on the task for another 45 minutes. At the end of the 45-minute period, subjects again completed the questionnaire.

In the conditions where subjects experienced a change in task procedures, the experimenter explained the new procedures. Subjects read another job description and statements containing either positive or negative cues. The experimenter also provided additional verbal cues concerning the nature of the task. Subjects were required to work on the task using the second procedure for 45 minutes. At the end of this period, subjects again completed the questionnaire based on performing the task using the second procedures.

At the end of the second work period, participants signed a form confirming their participation in the experiment. They were then paid $10 in cash for their two hours of involvement in the study.

Manipulations

As described earlier, the experiment consisted of manipulations of task design and social cues. There were two levels of each variable: enriched versus unenriched task procedures and positive versus negative social cues.

Task Enrichment. The task enrichment manipulation was created by the procedures used in processing the applications. In the enriched condition, the task procedures were designed to maximize the dimensions of task variety, autonomy, feedback, identity, and significance. On the other hand, in the unenriched condition, the procedures were designed to minimize these same task dimensions. The procedures, described below, were precisely those validated in the pretest.

(Task Variety). In the enriched condition, subjects were required to use a variety of skills. Specifically, they were required to code information, and read and evaluate an essay by the applicant, transcripts of grades, and letters of recommendation. Finally, subjects were requested to make a recommendation concerning the admittance of the applicant. Consequently, performing the task required the use of analytical and judgemental skills. In the unenriched condition, subjects were required only to code information from the application to a coding sheet. This required little skill and judgment.

(Task Autonomy). In the enriched condition, few rules and guidelines were provided concerning the evaluation and admittance of an applicant. A standard was suggested, but subjects were allowed to use their own judgment in whether to adhere to the recommended standard. Because there were few guidelines, subjects had a great deal of autonomy in processing the applications. On the other hand, in the unenriched condition, subjects were provided with specific rules and guidelines to follow in coding information. There was no opportunity for independent judgment.

(Task Feedback). Participants in the enriched condition coded information for each applicant on a separate coding sheet. After processing the application, subjects were required to place the coding sheets in a pile, thus facilitating a visualization of their progress and completed work. In the unenriched condition, subjects coded all applications on one coding sheet. Thus, it was more difficult for the subjects to visualize the volume of their completed work.

(Task Identity). In the enriched condition, participants evaluated the application and made one of the following recommendations: admit unconditionally, admit on probation, or reject. Thus, the completion of the task was identified by a determination of the status of the applicant. However, in the unenriched condition, subjects were told that their job was only a part of the process of evaluating the applications. They were told that the coded information would be entered in a computer; others would make final recommendations concerning the applicants.

(Task Significance). Since subjects in the enriched condition were required to make a recommendation concerning the admittance of a student into the MBA program, it is evident that their decision would have a strong impact on others (the applicant). In the unenriched condition, there is no indication that the work they are performing would have a significant impact on the lives of others; the final decisions concerning the applicants would be made by others.

Social Cues. The social manipulation consisted of positive and negative cues concerning specific task dimensions and the general nature of the task. The cues were provided at the beginning of both work periods and were delivered in three forms: written job descriptions, fictitious written evaluations from other participants, and verbal statements from the experimenters.

(Written Cues). Positive or negative written cues were provided in a job description and a list of statements which participants were told had been provided by individuals who had previously worked on the task. An example of a positive cue in a job description for the enriched conditions was "The task is interesting, pertinent, and challenging." A negative cue in a job description for the same conditions was "Unfortunately, the job is vague and difficult."

Positive cues in a job description for the unenriched conditions included the following: "The task is easy and very straightforward so you don't have to worry about whether you're doing the job correctly or not." On the other hand, a negative cue in a job description for the same conditions was "Unfortunately, the task is nothing more than a routine clerical task."

After reading the job descriptions, participants were asked to read a list of statements concerning the general nature of the task. They were told that individuals who had previously worked on the task had provided the statements, reflecting their perceptions of the task. The cues were positive or negative and were consistent with the cues provided in the job description.

An example of a positive cue for the enriched conditions was "I really enjoyed working on this task. Because I was required to do many different things I found the job very challenging." A sample negative cue for the same conditions was "I really did not enjoy doing this task. Because I was required to do many different things, I found the job very confusing and difficult." In the unenriched conditions, a positive cue was "This job was easy to do and did not involve a great deal of concentration. Consequently, I enjoyed working on the task." An example of a negative cue was "The task was very repetitive and very dull. I did not like it at all."

(Verbal Cues). Following the written cues, the experimenter provided verbal cues (positive or negative) which were consistent with the written cues. The verbal cues were also provided at the beginning of each work period. An example of a positive verbal cue in the enriched conditions was "I think you'll like doing this job. You get to do several different things, and you get to choose how you do them." On the other hand, a negative verbal cue for the same conditions was "Unfortunately, this job is very vague. There does not appear to be much direction or purpose to it." A positive verbal cue for the unenriched conditions was "I think you will enjoy doing the job. The

procedure is straightforward and specific." Finally, one negative verbal cue for the same conditions was "Unfortunately, I don't think you'll enjoy doing the job using this procedure. This way of doing the job is very straightforward and you don't get to exercise any creativity."

Measures

Three categories of outcome variables were measured: specific task perceptions, general task perceptions, and affective reactions. They were measured, respectively, with the JDS (Hackman & Oldham, 1975), Scott's (1967) semantic differential scale, and the MSQ and five-item job satisfaction scale written by the authors. These scales were described, and their utilities demonstrated, in the discussion of the experimental pretest.

Results

Table 3 shows the intercorrelations among the dependent variables at the two separate measurement periods, as well as their test-retest

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Insert Table 3 About Here

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reliabilities. While the test-retest correlations were generally low from a psychometric (reliability) perspective, such magnitudes are appropriate due to the experimental interventions and the interest in consequent changes in scale scores between the two time periods.

Because of the strong intercorrelations among the dependent variables, the mean scores displayed in Table 4 were analyzed via

multivariate analysis of variance (MANOVA). Two sets of MANOVA

Insert Table 4 About Here

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analyses were run. First, pure differences among the cells were tested using static time two (t2) data, to determine the final outcomes of the various combinations of task and cue consequences. Second, all t1 data were covaried out of the t2 data. This procedure controlled for differences in attitudes and perceptions that existed prior to the t2 manipulations, eliminated the autocorrelation characteristic of time series data, and provided an assessment of changes induced by the experimental sequences (Cohen & Cohen, 1975; Cook & Campbell, 1976).

These analyses were performed on three subsets of experimental cells. These subsets were chosen a priori for their pertinence to the research issues and their ability to summarize and interpret the results of a complex design involving four empty cells and sequential as well as simultaneous manipulations. The three subsets, which were all fully crossed factorial designs, were: (1) cells 1,4,9, and 12 -- a 2X2 design comparing only those cells in which both tasks and cues changed from t1 to t2; (2) cells 2,3,5,6,7,8,10, and 11 -- a 4X2 design combining all possible task sequences with the two unchanging cue sequences; and (3) cells 1,2,3,4,9,10,11, and 12 -- a 2X4 design combining the two changing task sequences with all possible cue sequences.

Table 5 summarizes the results of these analyses. Fourteen of the

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Insert Table 5 About Here

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eighteen multivariate F tests were significant; stepdown univariate tests indicated that all of the dependent variables contributed to virtually all of these effects. Thus, differences in final perceptual and affective responses, as well as changes in these responses from t1 to t2, were affected. The pattern of mean differences for the cue and task main affects are universally consistent with the nature of the tasks and cues to which subjects were exposed.

Two of the multivariate interaction terms were also significant. In the 4x2 design (all possible task sequences combined with the two unchanging cue sequences), all four dependent variables contributed to the effect. The pattern of mean scores was similar across all four variables. There were greater differences between the effects of the two cue sequences when the task sequence was negative to positive, and to a certain extent when the task sequence was positive to positive, than in the two task sequences that finished with a negative task. In other words, it appeared that positive cues enhanced the positive task, but were incapable of enhancing the negative task.

In the 2x4 design (changing task sequences combined with all cue sequences), the pattern of all means was again consistent across dependent variables. The key contributor to the significant interaction term occurred in the cue sequence of all negative cues; there was much less positive effect of a change from a negative to a positive task when cues were negative throughout the experiment than in the other cue sequences. In all other conditions - even when t2 cues were negative, but were preceded by positive cues - the negative to positive task sequences had a positive impact.

Only in the 2X2 design were all three multivariate effects not significant. In that analysis, the task sequence was the sole (and strong) effect. Inspection of the other significant ratios further suggest, albeit speculatively, the general and relative superiority of the task manipulations toward predicting subjects' responses.

To more clearly assess the relative efficacy of the three models, a final set of analyses, somewhat unconventional from a traditional research design perspective, were conducted. The analyses involved predicting rank orderings of the dependent variables for different sets of cells based on each of the three models and then investigating mean differences across sets so as to test the predicted orderings. The predictions, in turn, are derived from Table 1 and include time 1 levels, time 2 levels, and changes from time 1 to time 2.

Table 6 summarizes the results for the task attributes model predictions. At time 1, for example, subjects in

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Insert Table 6 About Here

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cells 5,6,9,10,11, and 12 performed the enriched task and, consequently, would be predicted to indicate higher levels of task perceptions and satisfaction than would subjects in cells 1,2,3,4,7, and 8 who performed the unenriched task. At time 2, higher levels should be found in cells 1,2,3,4,5, and 6. In terms of change, there should be a positive change in cells 1,2,3, and 4 (these subjects moved from an unenriched to a enriched task), no change in cells 5,6,7, and 8 (these subjects did not change tasks), and a negative change in cells 9,10,11, and 12 (these subjects moved from a enriched to an unenriched

task). As indicated, a series of ANOVAS found significant differences across means ($p<.001$) for all variables. Moreover, all differences are in the predicted directions. Hence, the task attributes model is supported.

Results for the social information processing model predictions are presented in Table 7. While the basic model receives general

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Insert Table 7 About Here

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support, there are also several predictions that are weakly supported or else not supported at all. For example, task perceptions as indexed by the MPS are not significantly different at time 2, and general satisfaction levels as indexed by the MSQ are different at only the .05 level. Similarly, mean changes for the MPS are not significantly different, while the differences tapped by the semantic differential are significant at the .01 level (a reasonable difference, of course, but clearly not as powerful as the levels achieved by several of the other variables).

Finally, Table 8 summarizes the results for the integrated model. The predictions for this model are more complex and refined.

Insert Table 8 About Here

For example, the model predicts three levels for each variable within time points and five gradations of change. At time 1, for instance, cells 5,10 and 12 are predicted to reflect very high levels (enriched job with positive cues), cells 2,4,6,7,9, and 11 intermediate levels

(enriched job with negative cues or unenriched job with positive cues), and cells 1,3, and 8 very low levels (unenriched job with negative cues). Again, all predicted patterns of mean differences are significant ($p<.001$) in the predicted directions. The results of these analyses, then, provide clear and consistent support for both the task attributes and integrated models, and only moderate support for the social information processing model.

Discussion

This study investigated the merits of three different models of task perceptions: the task attributes model (which assumes that task perceptions and affect result from objective facets of the work environment), the social information processing model (which assumes that task perceptions and affect result from social information in the work environment), and a general integrative framework (which suggests that task perceptions and affect are jointly determined by both objective workplace facets and social information). Results provided moderate support for the social information processing model and stronger support for both the task attributes model and the general integrative framework. Like most research in the social sciences, this study was characterized by a number of strengths and weaknesses which must be delineated before implications can appropriately be drawn.

Two strengths, in particular, characterize this study. First, by manipulating both objective task attributes and social information in a laboratory setting, it was possible to tightly control the frequency and magnitude of each information source. Great care was taken to

provide an adequate test of each model through valid manipulations of all information sources. Second, by focusing on changes in both objective task attributes and social information, the study provided a more powerful test of each viewpoint than found in previous studies. The nature of this experimental design, compared to the typical static design, allowed a more accurate representation and analysis of the dynamic processes surrounding task perceptions.

Unfortunately, the alternative side of these strengths is also the greatest weakness of the study. Specifically, the laboratory setting represents a contrived setting characterized by artificiality. Nonetheless, the power provided by the experimental control and inferences allowable from the changes in each independent variable identify a number of important implications that can be drawn about the formation of task perceptions and attitudes.

First, it is clear that objective facets of the workplace influence how people perceive and respond to their tasks. This pattern, consistent with the task attributes view, was evident in both sets of static results as well as in the changes in perceptions and affect from time 1 to time 2. However, it is likewise clear that social information in the workplace is also capable of influencing task perceptions and reactions. While the effects of social information were found to be of lesser magnitude and consistency, the social information processing perspective must obviously not be rejected out-of-hand.

Of perhaps greatest significance, however, is the clear and consistent support provided for the general integrative framework. The ability of the integrative framework to predict finer gradations of

both absolute outcomes and changes in outcomes and the empirical support accorded those predictions underscores the efficacy of this approach relative to the other two. Managers and organizations can benefit from this evidence that 1) task characteristics and social cues combine to have the greatest impact on employee reactions to jobs, and 2) positive changes in these reactions can be produced, as constructive changes in an existing work environment are introduced. Heretofore, most evidence has accumulated from research designs that introduced naive (new) subjects to different task environments without attempting to create or measure actual changes.

In many ways, it is also instructive to note that while these results supporting the integrative framework were obtained from a study specifically designed to test the three different approaches, they are consistent with many of the results obtained in earlier studies. In the lab studies cited earlier, for example, both objective task properties and social information were found to affect perceptions and reactions. Similarly, the one reported field experiment (Griffin, 1983) also found main effects for both sources of information, as well as a number of interactions. The study reported here, then, is in many ways the culmination of an evolving, almost serendipitous research stream consistently demonstrating the joint effects of objective task properties and social information on individual task perceptions and reactions. As in so many other literatures, the pendulum has swung from one extreme perspective (task attributes) to a competing alternative (SIP), and will now perhaps settle into an integrative middle ground.

The next step, then, is an obvious one: the formulation and specification of a unified theory of task design. The development of such a theory is clearly beyond the scope of this study. However, the ideas and findings reported here can be useful in identifying the broader context in which a unified theory of task design might be based.

First, there needs to be a clear delineation of what is meant by task. The task attributes approach conceptualizes a task in terms of objective attributes of the job being performed by the incumbent. While few researchers have acknowledged this difference, the social information processing model, in contrast, implicitly takes a broader view of task. For example, Salancik and Pfeffer (1978, p. 227) use style of supervision and general working conditions as examples of "characteristics of the job or task." Clearly, then, the precise delineation of the boundaries of task need to be explicated.

A second issue in need of resolution is the clarification of the question or questions being addressed. The task attributes approach typically sought answers to the question "how do different kinds of people respond to their perceptions of various objective job dimensions?" In contrast, the social information processing view has attempted to answer the question "how do people form perceptions of and responses to their jobs?" While these two broad questions are obviously related, they are just as obviously concerned with different processes. The former centers on reactions to objective phenomena, while the latter focuses on how perceptions are constructed. Perhaps a general, integrative question worthy of attention might take the form "what are the roles of different sources of information used by people in the formation of perceptions of and attitudes toward their jobs?"

After clarification of variable definition and question formulation, attention should then be turned toward the development of a unified theory of task design. At a minimum, such a theory should address the following set of questions: (1) sources of information in the formation of task perceptions, including the weighting, sequencing and other processes involved in the assimilation of various kinds of information, (2) the processes involved in the construction of social realities, and (3) the direction and magnitude of effects between workplace perceptions, attitudes, and behavior. This study, for instance, provides some useful indicators about question 1. Specifically, both social information and objective task properties influenced task perceptions and attitudes, positive social information enhanced good tasks but not bad tasks, and changing from a bad to a good task was perceived favorably.

Finally, of course, research in a variety of settings is needed to confirm or deny various elements of the unified theory. Laboratory work would appear to be useful in testing specific propositions, but of limited long-term value in understanding task design processes without supplement by well-designed field research. Statistical assessments in the field should further be complemented by qualitative strategies like direct observation and participant observation. Such approaches should allow for greater richness in the data acquired and increased insight in its interpretation.

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Table 1
Predictions of the Three Models

Task Attributes Model Predictions:

1. Enriched jobs will lead to high levels of task perceptions and satisfaction
2. Unenriched jobs will lead to low levels of task perceptions and satisfaction
3. A change from an unenriched to an enriched job will lead to a positive change in task perceptions and satisfaction
4. A change from an enriched to an unenriched job will lead to a negative change in task perceptions and satisfaction
5. No change in the job will lead to no change in task perceptions and satisfaction

(These effects should hold regardless of social cues)

Social Information Processing Predictions:

1. Positive cues will lead to high levels of task perceptions and satisfaction
2. Negative cues will lead to low levels of task perceptions and satisfaction
3. A change from negative to positive cues will lead to a positive change in task perceptions and satisfaction
4. A change from positive to negative cues will lead to a negative change in task perceptions and satisfaction
5. No change in cues will lead to no change in task perceptions and satisfaction

(These effects should hold regardless of objective task properties)

Integrated Model Predictions:

1. Enriched jobs with positive cues will lead to very high levels of task perceptions and satisfaction
2. Enriched jobs with negative cues or unenriched jobs with positive cues will lead to intermediate levels of task perceptions and satisfaction
3. Unenriched jobs with negative cues will lead to very low levels of task perceptions and satisfaction
4. A change from an unenriched job with negative cues to a enriched job with positive cues will lead to a very positive change in task perceptions and satisfaction
5. A change from an unenriched job with positive cues to an enriched job with positive cues or a change from an unenriched job with negative cues to an enriched job with negative cues will lead to a positive change in task perceptions and satisfaction
6. A change from an unenriched job with positive cues to an enriched job with negative cues, a change from an enriched job with negative cues to an unenriched job with positive cues, or no change in the combination of enriched/unenriched job with positive/negative cues will lead to no change in task perceptions and satisfaction
7. A change from an enriched job with positive cues to an unenriched job with positive cues or a change from an enriched job with negative cues to an unenriched job with negative cues will lead to a negative change in task perceptions and satisfaction.
8. A change from an enriched job with positive cues to an unenriched job with negative cues will lead to a very negative change in task perceptions and satisfaction

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Table 2

Means, Standard Deviations, Reliabilities And Mean Differences For The Laboratory Pretest

	Total Sample			Differences between Groups		
Variable	Mean	S.D.	Alpha	Enriched Task Mean	Unenriched Task Mean	F
Task Variety	2.15	1.13	.51	2.85	1.45	24.33***
Task Autonomy	3.55	1.80	.75	5.02	2.08	80.69***
Task Feedback	4.92	1.03	.49	5.28	4.55	5.62*
Task Identity	4.19	1.55	.49	4.87	3.52	9.12**
Task Significance	1.62	1.79	.82	2.63	.60	18.68***
MPS	57.09	47.32		94.47	19.71	67.51***
Semantic Differential	3.78	1.25	.91	4.46	3.11	16.18***
Intrinsic Satisfaction	2.98	.82	.90	3.50	2.45	28.51***
Extrinsic Satisfaction	3.09	.55	.74	3.08	3.10	.01
Overall Satisfaction	3.07	.63	.90	3.40	2.75	14.41***
Job Characteristics	2.79	1.06	.91	3.44	2.13	24.49***

*p < .05, **p < .01, ***p < .001

Table 3
Intercorrelations Among Dependent Variables

		time 1 intercorrelations			
		MPS	SEMDIF	MSQ	JOBSAT
time 2 intercorrelations	MPS	(-.06)	.46*	.56*	.61*
	SEMDIF	.67*	(.23)*	.39*	.50*
	MSQ	.71*	.76*	(.31)*	.69*
	JOBSAT	.72*	.79*	.80*	(.23)*

Notes: 1. test-retest reliabilities in diagonals
* p<.001.

Table 4

Cell Means and Standard Deviation
of Dependent Variables

task sequences	Dependent Variables	cue sequences: −	+	+	+	−	−	+	−
		t_1	t_2	t_1	t_2	t_1	t_2	t_1	t_2
− +	MPS	11.49 (7.64)	101.83 (50.44)	30.13 (42.76)	110.40 (49.62)	9.31 (17.32)	37.77 (30.70)	20.00 (16.02)	99.84 (57.21)
	SEMDIF	3.35 (0.54)	4.67 (1.04)	3.92 (0.57)	4.77 (0.40)	2.88 (0.92)	3.00 (1.19)	3.99 (1.11)	[illegible] (0.70)
	MSQ	2.53 (0.41)	3.46 (0.48)	2.92 (0.52)	3.54 (0.32)	2.62 (0.55)	2.70 (0.52)	3.33 (0.46)	3.54 (0.37)
	JOBSAT	1.93 (0.40)	3.56 (0.77)	2.72 (0.74)	3.93 (0.69)	1.81 (0.67)	2.09 (1.02)	3.22 (0.82)	3.46 (0.88)
+ +	MPS			90.27 (46.11)	93.44 (46.22)	46.13 (32.34)	36.78 (28.33)		
	SEMDIF			4.55 (0.91)	4.61 (0.61)	3.83 (0.54)	3.62 (0.83)		
	MSQ			3.70 (0.29)	3.67 (0.35)	3.38 (0.54)	3.26 (0.52)		
	JOBSAT			3.68 (0.62)	3.59 (0.60)	2.60 (0.89)	2.63 (1.10)		
− −	MPS			21.94 (21.66)	17.69 (14.16)	8.34 (9.86)	16.29 (23.13)		
	SEMDIF			3.45 (1.46)	4.05 (0.61)	3.29 (0.55)	3.21 (0.57)		
	MSQ			3.07 (0.50)	3.01 (0.51)	2.62 (0.47)	3.59 (0.59)		
	JOBSAT			2.75 (0.88)	2.68 (1.05)	1.87 (0.67)	1.95 (0.90)		
+ −	MPS	49.91(27.30)	11.08 (11.88)	92.99 (50.97)	14.09 (12.85)	50.66 (41.18)	6.76 (7.92)	96.17 (56.84)	11.39 (12.72)
	SEMDIF	3.39 (1.36)	3.59 (0.52)	5.00 (0.48)	3.89 (0.77)	3.67 (1.12)	3.45 (0.55)	4.03 (1.59)	3.10 (0.93)
	MSQ	3.04 (0.82)	2.68 (0.48)	3.58 (0.30)	2.80 (0.53)	3.24 (0.47)	2.57 (0.36)	3.47 (0.40)	2.51 (0.40)
	JOBSAT	2.65 (0.78)	2.27 (0.77)	3.91 (0.53)	2.42 (0.82)	2.71 (0.71)	1.65 (0.75)	3.49 (0.80)	1.92 (0.73)

Table 5

Multivariate Analysis of Variance and Covariance:

Stepdown F Ratios for Dependent Variables

Cell Subsets	Dependent Variables	MANOVA Factors (static t_2 data) task	cues	cues x task	MANOVA Factors (t_2 data with covariates) task	cues	cues x task
I (2X2) changing task, changing cues	MPS	91.26***	.01	.02	46.03***	.01	.00
	SEMDIF	41.95***	2.70	.72	21.76***	.42	1.02
	MSQ	100.45***	.32	.70	54.72***	.16	.56
	JOBSAT	58.31***	1.37	.47	22.22***	.16	.05
	Multivariate	29.08***	1.16	.50	15.17***	.15	.50
	(univariate dfs)	(1,69)	(1,69)	(1,69)	(1,65)	(1,65)	(1,65)
II (4X2) all task sequences, changing cues	MPS	35.93***	43.32***	10.94***	45.88***	11.39***	12.43***
	SEMDIF	2.60	61.74***	4.70**	7.07***	11.78***	7.38***
	MSQ	22.06***	39.60***	1.84	33.47***	10.72***	3.12*
	JOBSAT	10.48***	49.41***	2.92*	22.90***	6.80**	4.74**
	Multivariate	10.67***	18.61***	3.35***	11.69***	4.51**	4.12***
	(univariate dfs)	(3,119)	(1,119)	(3,119)	(3,115)	(1,115)	(3,115)
III (2X4) changing task, all cue sequences	MPS	159.44***	9.68***	6.07***	102.46***	7.50***	5.92***
	SEMDIF	28.61***	13.11***	8.48***	19.97***	10.71***	7.35***
	MSQ	112.57***	12.10***	5.01**	82.93***	11.50***	4.60**
	JOBSAT	73.27***	17.03***	3.39*	38.40***	15.41***	2.56
	Multivariate	47.41***	4.59***	2.70**	32.41***	4.00***	2.58**
	(univariate dfs)	(1,132)	(3,132)	(3,132)	(1,128)	(3,128)	(3,128)

Notes: * $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.

Table 6
Task Attributes Predictions
And Average Cell Means

Variable	Period/Predictions		Significance
	Average Time 1 Cell Means		
	Predicted High Levels: Cells 5,6,9,10,11,12	Predicted Low Levels: Cells 1,2,3,4,7,8	
MPS	71.82	16.90	.001
SEMDIF	4.08	3.49	.001
MSQ	3.40	2.86	.001
JOBSAT	3.19	2.40	.001
	Average Time 2 Cell Means		
	Predicted High Levels: Cells 1,2,3,4,5,6	Predicted Low Levels: Cells 7,8,9,10,11,12	
MPS	80.97	12.83	.001
SEMDIF	4.20	3.54	.001
MSQ	3.36	2.69	.001
JOBSAT	3.21	2.15	.001
	Change (T2-T1)		
	Predicted Positive Change: Cells 1,2,3,4	Predicted No Change: Cells 5,6,7,8	Predicted Negative Change: Cells 9,10,11,12	
MPS	69.86	-.62	-62.47	.001
SEMDIF	.69	.09	- .53	.001
MSQ	.45	-.06	- .70	.001
JOBSAT	.82	-.01	- 1.13	.001

Table 7
Social Information Processing Predictions
And Average Cell Means

Variable	Period/Predictions		Significance
	Average Time 1 Cell Means		
	Predicted High Levels: Cells 2,4,5,7,10,12	Predicted Low Levels: Cells 1,3,6,8,9,11	
MPS	57.91	28.57	.001
SEMDIF	4.16	3.38	.001
MBQ	3.35	2.89	.001
JOBSAT	3.30	2.25	.001
	Average Time 2 Cell Means		
	Predicted High Levels: Cells 1,2,5,7,9,10	Predicted Low Levels: Cells 3,4,6,8,11,12	
MPS	58.21	43.06	n.s.
SEMDIF	4.17	3.59	.001
MBQ	3.15	2.96	.05
JOBSAT	3.01	2.41	.001
	Change (T2-T1)		
	Predicted Positive Change: Cells 1,9	Predicted No Change: Cells 2,3,5,6,7,8, 10,11	Predicted Negative Change: Cells 4,12	
MPS	27.60	-1.26	1.87	n.s.
SEMDIF	.78	.00	-.17	.01
MBQ	.30	- .12	-.35	.001
JOBSAT	.65	- .13	-.62	.001

Table 8
Integrated Model Predictions
And Average Cell Means

Variable	Period/Predictions			Significance
	Average Time 1 Cell Means			
	Predicted Very High Levels: Cells 5,10,12	Predicted Intermediate Levels: Cells 2,4,6,7,9,11	Predicted Very Low Levels: Cells 1,3,8	
MPS	93.32	33.87	9.79	.001
SEMDIF	4.52	3.68	3.17	.001
MSQ	3.58	3.21	2.59	.001
JOBSAT	3.69	2.83	1.87	.001
	Average Time 2 Cell Means			
	Predicted Very High Levels: Cells 1,2,5	Predicted Intermediate Levels: Cells 3,4,6,7,9,10	Predicted Very Low Levels: Cells 8,11,12	
MPS	102.23	38.74	17.88	.001
SEMDIF	4.68	3.82	3.37	.001
MSQ	3.55	2.96	2.76	.001
JOBSAT	3.69	2.61	2.06	.001
	Change (T2-T1)			
	Predicted Very Positive Change: Cell 1	Predicted Positive Change: Cells 2,3	Predicted No Change: Cells 4,5, 6,7,8,9	Predicted Negative Change: Cells 10,11	Predicted Very Negative Change: Cell 12	
MPS	90.34	53.62	9.28	-62.50	-84.77	.001
SEMDIF	1.32	.47	.20	- .69	- .93	.001
MSQ	.93	.34	-.06	- .73	- .97	.001
JOBSAT	1.62	.73	-.03	- 1.28	- 1.57	.001

Figure 1

Theoretical Framework

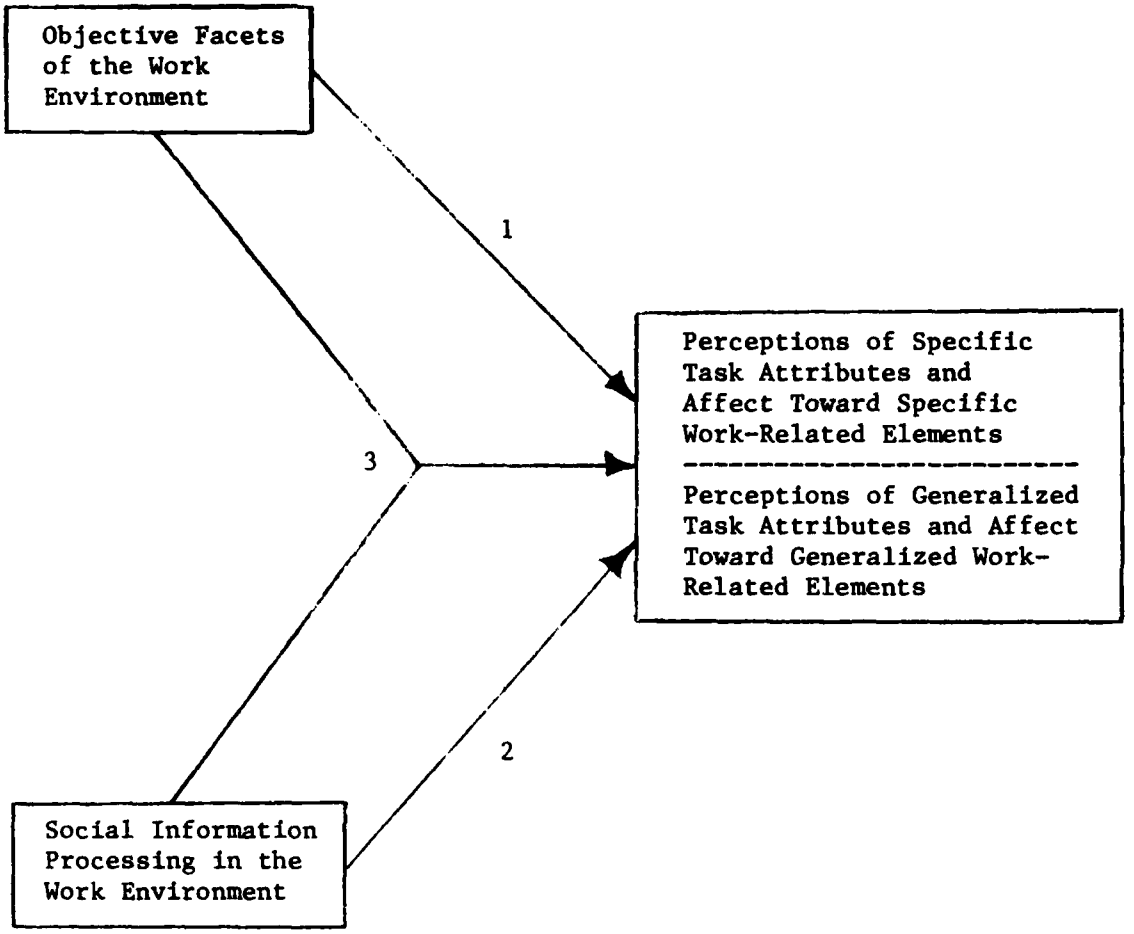
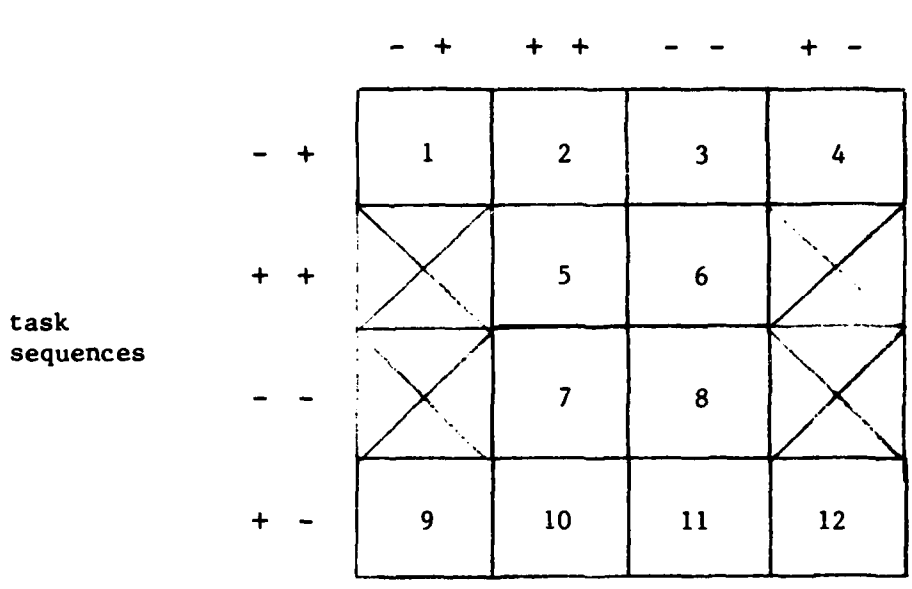


Figure 2

Research Design



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Yale University
School of Organization and Management
New Haven, Connecticut 06520

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Department of Psychology
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2430 Campus Road
Honolulu, HI 96822

Dr. Jomills Braddock
John Hopkins University
Center for the Social Organization
of Schools
3505 N. Charles Street
Baltimore, MD 21218

Dr. Sara Yogev
Northwestern University
Graduate School of Management
2001 Sheridan Road
Evanston, IL 60201

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American Humane Association
P.O. Box 1266
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Michigan State University
East Lansing, MI 48824

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The University of Mississippi
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University, MS 38677

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417 Bruce V. Moore Building
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College of Business Administration
Texas A&M University
College Station, TX 77843

Dr. Thomas M. Ostrom
The Ohio State University
Department of Psychology
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404C West 17th Avenue
Columbus, OH 43210

Dr. William G. Ouchi
University of California,
Los Angeles
Graduate School of Management
Los Angeles, CA 90024

Dr. Robert Rice
State University of New York at Buffalo
Department of Psychology
Buffalo, NY 14226

Dr. Benjamin Schneider
Department of Psychology
University of Maryland
College Park, MD 20742

Dr. H. Wallace Sinaiko
Program Director, Manpower Research
and Advisory Services
Smithsonian Institution
801 N. Pitt Street, Suite 120
Alexandria, VA 22314

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Psychology Department
Purdue University
West Lafayette, IN 47907

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