This is to certify that the

thesis entitled

Effects of Leader Initiating Structure under Conditions of High and Low Role Ambiguity

presented by

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has been accepted towards fulfillment of the requirements for

M.A. degree in Psychology

Neal Schmitt

Major professor

Date November 9, 1979

per Michael L. Moore

EFFECTS OF LEADER INITIATING STRUCTURE UNDER CONDITIONS OF HIGH AND LOW ROLE AMBIGUITY

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Psychology

1979

ABSTRACT

EFFECTS OF LEADER INITIATING STRUCTURE UNDER CONDITIONS OF HIGH AND LOW ROLE AMBIGUITY

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This study investigated the moderating effect of role ambiguity on the relationship between leader initiating structure and satisfaction with leader, satisfaction with task, and task performance. It was hypothesized that there would be an interaction between role ambiguity and initiating structure such that as role ambiguity increased, there would be a more positive relationship between initiating structure and the dependent variables. The personality variables of need for achievement, independence, and clarity were hypothesized to a act as moderators. Seventy-two college students participated in an experimental situation under one of four conditions produced by crossing role ambiguity with initiating structure. Univariate analyses indicated a significant interaction only for satisfaction with leader. Planned comparisons among cell means indicated partial support for the basic research hypotheses. Regression analyses indicated none of the personality variables acted as moderators.

ACKNOWLEDGMENTS

This thesis was not solely an individual project. It would not have come to fruition if it had not been for the help of many people. It is to these people who I owe my thanks.

I want to thank my friend Jim Wood, wherever he may be, for steering me toward industrial/organizational psychology so many years ago at Penn State. Dr. James Farr deserves thanks for the advice and guidance he gave me when I was an undergraduate.

I am grateful to the members of my committee for the assistance they gave me during the long duration of this project. My special thanks go to my chairman, Neal Schmitt, for being a patient and helpful sounding board for my ideas and frustrations. Eileen Thompson's contributions were very helpful, as was Michael Moore's interest and encouragement.

I would also like to extend my thanks to the many 490 students who worked on the project with me. My special thanks go to Cindy Martin and Mark Fifield for the time they spent, their interest and commitment, and their contributions.

I have a deep debt of gratitude to my friends in the East whose widsom has helped me make myself a better person and a better student.

Last, but certainly not least, I want to thank two people who are very important in my life. The first is a fellow graduate student,

Rick Steinberg. Rick's advice, encouragement (which at times could be construed as prodding), and friendship was instrumental in completing this project. I also want to thank a very special friend, my wife Vicki. While her help on this thesis has not been extensive, her help in other ways is appreciated more than she can know.

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Statement of the Problem

For many years the study of leadership and leader behavior has been focused upon frequently in the industrial/organizational psychology literature. Various leadership dimensions have been investigated and named by researchers; the two most frequently identified being consideration (also called people-oriented, human relations and/or supportive leadership) and initiating structure (also called task-centered, production oriented, instrumental leadership). Voluminous amounts of research have failed to find a consistent relationship between the latter leader behavior dimension and employee satisfaction (Korman, 1966). Rarely there is a positive relationship, sometimes no relationship, and often a negative relationship. Conceivably an important variable which affects the direction and magnitude of this relationship is the nature of individuals' jobs and roles and the way in which they view their jobs and roles.

Stress is an important variable that has pervasive effects on the behavior of individuals in organizational and non-organizational settings. Many types of stress have been identified but the focus of this discussion will be on job stress, which has been defined as "the condition in which some factor, or combination of factors, at work interacts with the worker to disrupt his psychological or physiological

homeostatis" (Kahn & Quinn, 1970, p. 15). To use an engineering analogy, job stress experienced by an individual is associated with job strain. Examples of job strains are anxiety, tension, depression, poor health, and work performance decrements.

The Concept of Role Ambiguity

One specific job stress that has attracted increasing attention in the role theory literature in recent years is role ambiguity (RA). Since the rest of this discussion will focus on RA, the author feels a brief overview of role theory is essential. Van Sell, Brief, and Schuler (1977) assert that role theory bridges the individual and organizational levels of analysis. Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) say that,

> The life of an individual can . . . be seen as an array of roles which he plays in the particular set of organizations and groups to which he belongs. . . . Characteristics of these organizations and groups affect the physical and emotional state of the person, and are major determinants of his behavior (p. 11).

An individual is linked to an organization through the concept of office, which is defined by Kahn et al. (1964) as a unique point in the organizational structure of interrelated positions. A role is the set of activities (behaviors) linked to an office. Each office is related to all other offices in the organization, closely to some and less closely to others. An individual's role set are those offices (and the individuals who occupy them) that are directly related to the focal office and that affect the behavior of the individual in the focal office. Each member of an individual's role set is affected by that individual's performance. If he performs poorly, this may adversely affect their performance. As a result, the role set members develop ideas about what

is appropriate role behavior for the focal individual, ideas about what he should and should not do. These ideas are defined as role expectations. These ideas are not only held but also communicated to the focal person in a variety of ways, some openly and some subtly. The members of the role set will be referred to as role senders and the communications they send as sent role.

The adequacy or inadequacy of role sendings is the major determinant of RA. In order for an individual to adequately perform his assigned job, he must have certain amounts of information available to him. The availability of role relevant information is essential not only for individual mental well-being and effective performance but also from the organizational standpoint. The degree of availability of role relevant information determines the amount of experienced RA.

RA is generally defined as the absence of clarity concerning what is required for adequate job performance. An assumption implicit in the preceding definition is that the experience of RA is a subjective phenomenon. The focal person may have enough information but feels that he does not. Van Sell et al. (1977) define RA as, "The degree to which clear information is lacking regarding (a) the expectations associated with a role, (b) methods for fulfilling known role expectations, and/or (c) the consequences of role performance" (p. 3). RA can be both objective (actual lack of role relevant information) and subjective (perception of an individual that he/she does not have as much role relevant information as he/she would like to have).

RA is considered by this author to be an important variable to study because of its consistent association with dysfunctional personal and organizational consequences in the literature and because of its

prevalence. Research has shown that RA is regularly related to dissatisfaction, tension, anxiety, distrust, turnover, absenteeism, and poor performance. These relationships will be discussed in greater detail in the following sections. RA also seems to be very widespread in organizations. Weick (1969) asserted that all organizational environments are characterized by ambiguity. Kahn et al. (1964) reported that 35 percent of their sample reported significant amounts of RA and French and Caplan (1972) indicated that 65 percent of their sample reported experiencing significant amounts of RA.

There are several determinants of role ambiguity in modern organizations which may account for its prevalence: complexity and size of organizations, rapid rate of organizational change, and current managerial leadership and communication philosophies. As the size of an organization increases, so does the complexity of structure, specialization, and differentiation. Individuals have a limited information processing capacity and according to Kahn et al. (1964) many modern organizations have reached a point where no single individual can know all there is to know about the organization. Rapid change (social, economic, technological, etc.) is a fundamental characteristic of our culture today. Reorganization in response to increases in organizational size and complexity and the introduction of technological modifications usually imply alterations in work procedures and social arrangements. The alterations themselves and their consequences are seldom well understood and frequently the people who are affected experience ambiguity. Frequent personnel changes also contribute to ambiguity. Due to the interdependent nature of organizations, some organizational theorists (Lawrence & Lorsch, 1967; Katz & Kahn, 1967) note that changes in one

part of an organization inevitably will cause changes in other parts of the organization. Managerial communication and leadership philosophies can also contribute to RA. In many organizations communication channels are not open and as a result not all organizational members are well-informed about what is expected of them, what the consequences of their behavior is, and how the "system" operates. This restriction of information may be consciously planned by management because of the effort required to get the "word around" or because management may feel that it can maintain and defend its position power and more easily control the work force by controlling the amount and specificity of information that is made available. If the amount of information that is available is restricted and distorted, there should be a good deal of experienced ambiguity.

As mentioned previously, research has shown that RA has been consistently associated with dysfunctional individual organizational consequences. This may be because an environment characterized by ambiguity does not provide enough cues that an individual can perceive and use as a basis for behavioral choices (Lazarus, 1966). In an organization an individual's behavior (i.e., performance) frequently determines the rewards and punishments that individual receives. If the organizational environment does not provide such cues, the individual will experience RA and will now know which behaviors will lead to rewards and which behaviors will not be rewarded and/or will be punished. Thus the individual does not know the consequences for his behavior, an experience which can be threatening and anxiety provoking and can lead to dissatisfaction. Researchers (Cohen, Stotland, & Wolfe, 1955) have examined a personality dimension called the need for cognition which reflects a

need for clarity, order, and meaningfulness in experience. As Kahn et al. note, "This need is no doubt instrumental to the gratification of other needs; need gratification and goal attainment are facilitated by a clear perception of the external world and a confident anticipation of future events" (1964, p. 24). Although the strength of this need varies from individual to individual, it seems reasonable to conclude that the experience of RA is associated with dissatisfaction because need gratification and goal attainment are not facilitated by the experience of ambiguity where the perception of the external world is not clear.

It also seems logical to assume that RA will be associated with lower levels of work performance. Consider the fact that performance is dependent upon many factors, one of which is possession of role relevant information. By definition RA is the lack of such information. Therefore one could surmise that lack of such information would result in less than optimal performance. In a similar vein Kahn et al. observe that "The ambiguity experience is predictably associated . . . with a reduction in the extent to which the demands and requirements of the role are successfully met by the role occupant" (p. 26).

In order to gain clearer understanding of the dynamics of RA, the author feels that it would be useful to present the Kahn et al. model of a role episode. A role episode is a process which is composed of three linked behavior events. First, members of the focal individual's role set engage in role sending behavior. Second, the focal individual experiences the message of the role sendings and responds in some manner, affectively and behaviorally. Third, the members of the focal individual's role set react in some way because their behavior is

influenced by the response of the focal individual. The members of the focal individual's role set (role senders) have expectations about the way the focal person should behave and have perceptions about how the focal person is actually performing. If expectations and perceptions are not in congruence, the role senders communicate their role expectations by exerting role pressures in an attempt to have the focal person conform with role expectations. The adequacy of the communication of role expectations by the role senders determines the amount of ambiguity experienced by the focal person. If the role expectations of the role senders are not adequately communicated, then the focal person will experience ambiguity. Experienced RA is frequently associated with the affective responses of dissatisfaction, tension, and anxiety and with the behavioral responses of withdrawal, absenteeism, and turnover (Kahn et al.).

RA has been defined as the degree of availability of role relevant information.

> To the extent that such information is communicated clearly and consistently to a focal person, it will tend to induce in him an experience of certainty with respect to his role requirements and his place in the organization. To the extent that such information is lacking, he will experience ambiguity (Kahn et al., 1964, pp. 25-26).

There are several different reasons why such information may be lacking. First, the focal person's role senders may not have available to them such information and thus cannot communicate it to the focal person. Second, poorly designed information distribution mechanisms in the organization may prevent or hinder the role senders' communication of that information. Third, poor interpersonal communication skills on the part of the role senders may lead to focal person having a less

than optimal amount of information. Fourth, role senders may consciously withhold role relevant information from the focal person. Finally, the communicated role expectations of several different role senders may be contradictory and leave the focal person in a quandary as of what course of action to take.

The previous description of a role episode was not sufficient. A complex model must be utilized to gain a better understanding of the factors that can contribute to the phenomenon of role ambiguity and moderate its effects. Figure 1 was developed by Kahn et al. (1964) to include these factors. Organizational factors, personality traits of the focal person, and the interpersonal relations between the focal person and the members of his role set all are engaged in a dynamic interplay that affects each role episode. For example, organizational factors are considered to be major determinants of the role expectations that are held by the members of an individual's role set. The duties and responsibilities of the occupant of an office are often prescribed by formally defined organizational rules, orders, policies, and procedures (e.g., job descriptions). It would be expected that if the duties and responsibilities of an office are not clearly defined, the role expectations of the role senders and the role occupant may be less than clear and the possibility of RA being experienced may be higher.

Personality factors of the focal person also have effects on role episodes which are very important, especially regarding the response to the experience of RA. For example, if communicated role expectations are unclear and result in the experience of ambiguity for the focal person, individuals with varying degrees of need strength will react differently. A person with a high need for cognition (Cohen et al.,

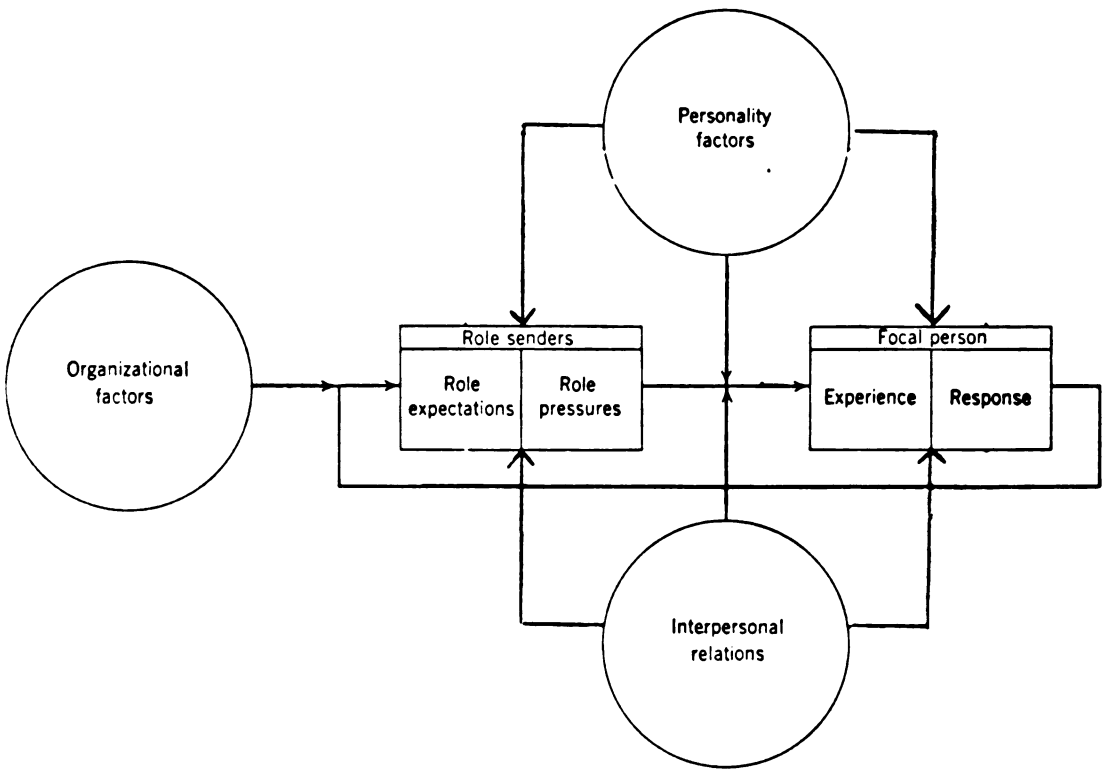

Figure 1. A theoretical model of factors involved in adjustment to role conflict and ambiguity.

1955) may react very negatively while a person with a low need strength on this personality dimension may not be particularly bothered by ambiguity. Similarly, an individual with a high need for independence may not react negatively to ambiguity and may indeed welcome the experience because it may enable him/her to act as he/she chooses rather than being required to follow clearly defined role prescriptions (Johnson & Stinson, 1975).

The third factor which Kahn et al. include in their model are the interpersonal relationships between the role senders and the focal person. Examples of such a factor are degree of dependence between individuals, affective bonds (liking, trust, respect), and ability to influence by role sending (power). For instance, a member of the focal person's role set with more formal authority than the focal person will send role pressures in a different manner and will have different role expectations than a peer of the focal person. Also the focal person will probably act differently to the sent role pressures of a superior than he/she will to a peer or a subordinate.

The implications of this analysis should be clear; RA is determined by a complex combination of several factors; it has no single underlying source or cause. Central to the theoretical framework of RA is the interrelationship of the three categories of variables, organizational, interpersonal, and personality variables, all of which have to be examined if we want to gain a better and more complete understanding of the phenomenon of RA and its negative outcomes for individuals and organizations. A final point must be made; the parameters of the study of RA encompass not only the antecedents of RA and the factors which affect is prevalence and intensity, but also its consequences.

A previously mentioned concept, role behavior, is defined as behavior which is exhibited by the focal person. This definition seems to indicate that role behavior is virtually equivalent in meaning to the frequently mentioned organizational behavior variable of job performance. This latter point is mentioned because virtually all of the RA research has involved the investigation of the affective and behavioral responses of individuals to RA and the consequences of these responses for the individuals and organizations concerned. It is also vital to note that the Kahn et al. model takes into account the fact that the affective and behavioral consequences of performance influence the organizational, interpersonal, and individual difference dimensions, a further indication of the dynamic nature of the model.

Role Ambiguity Research Results

After this overview of RA, its antecedents, contributing factors, and consequences, we can now explore some of the research findings of last two decades. Before this analysis begins however, a point must be made. Some researchers have considered RA to be a predictor variable while others have considered it a criterion variable. Still others have considered it an intervening or moderator variable. These distinctions will be indicated in the following pages.

Essentially RA researchers have been interested in three classes of variables. The role variables are one class and include RA, in several studies role clarity, and in one role consensus and role accuracy. The second class of variables includes the following three variables included in the Kahn et al. (1964) model--organizational, interpersonal, and individual difference/personality variables. The third and final

class of variables may be considered the consequences of RA or the outcome variables. These are divided into two categories; affective and behavioral outcome variables. Examples of the former category include satisfaction, anxiety, tension, mood, propensity to leave, job interest, confidence in the organization, and attitudes toward role senders. Some authors treat satisfaction as a multidimensional construct and look at more specific satisfaction dimensions such as satisfaction with supervisor, supervision, pay, promotion opportunities, and/or work itself. Examples of the behavioral outcome variables include turnover, absenteeism, self-perceptions of organizational effectiveness. This discussion will focus on primarily the affective outcome variable of satisfaction and the behavioral outcome variable of performance.

Many studies in the past 20 years or so have examined RA, a vast majority of them correlational field studies. Almost all of these studies have measured RA by using self-report questionnaires to tap the perceptions of the role incumbent. The most frequently used instrument was developed by Rizzo, House, and Lirtzman (1970). This instrument was developed to assess employee perceptions of conflict and ambiguity. Fourteen items concern role ambiguity. Rizzo et al. reported reliabilities of .78 and .808 in two samples.

Antecedent variables that have been examined would be included in the Kahn et al. term of organizational/ecological correlates of RA. Variables that have been examined include job autonomy, task feedback, organizational level, and role/office/position requirements. However the author feels that the variable most pertinent to this discussion is the degree of bureaucratic formalization in the organization.

The concept of organizational formalization and the reasons for its necessity has its roots in classical management theory. As organizations become larger and more complex, it becomes more difficult for organizational members to understand all the facets governing organizational functioning. This leads to the experience of ambiguity. Indeed Paul (1974) found a significant, albeit modest, negative correlation between size of school and role clarity for teachers ($r = -.20$, $p < .01$). Formalization is a reaction against this trend. Usually as organizations become larger and more complex, the number of specified rules, orders, policies, and procedures multiply to ensure that all employees know what to do under all circumstances. "According to classical management theory, every position in a formal organizational structure should have a specific set of tasks or position responsibilities" (Rizzo et al., 1970, p. 151). Such formal specification of duties should reduce experienced RA.

Rogers and Molnar (1976) examined the antecedents of RA in top level administrators in a state government. RA was treated as an outcome variable and assessed using the Rizzo et al. (1970) instrument. Formalization, in terms of goal clarity and specificity of procedures for getting the job done, was correlated negatively with RA ($r = -.26$, $r = -.29$, $p < .01$). It was also found that there was negative correlation of -.29 ($p < .01$) between RA and a formalization index (a combination of three terms measuring increased specificity of job descriptions, personnel policies, and office procedures).

Rizzo et al. (1970) found that organizational and managerial formalization practices were significantly correlated with lower amounts of RA in both organizations where the research was conducted ($r = -.57$,

$r = -.57$, $p < .05$). The same basic findings were obtained when the relationship between RA and organizational practices providing for horizontal communication ($r = -.42$, $r = -.29$, $p < .05$) and work flow coordination ($r = -.46$, $r = -.42$, $p < .05$), both of which appear to be functions of organizational formalization. In addition to the above mentioned variables, House and Rizzo (1972) examined selection based on ability and adherence to the chain of command and found a similar pattern of significant results.

O'Connell, Cummings, and Huber (1976) conducted laboratory experiments in which one of the independent variables was information input specificity. The subjects performed in three man groups under two conditions: groups composed of three co-equals and bureaucratically structured groups composed of a leader and two subordinates, who were assigned specific tasks and responsibilities by the leader. It was hypothesized that low information input specificity would produce a situation in which subjects would experience some feeling akin to RA and this would be associated with felt tension. Furthermore, it was postulated that felt tension would be lower in bureaucratically structured groups because the formalization procedure of assigning tasks and responsibilities would reduce ambiguity and result in a decrease in felt tension. This hypothesis was supported for role overload tension ($p < .10$) and role ambiguity tension ($p < .01$) when the information the group received was highly specific.

Thus it seems that organizational or bureaucratic formalization is mechanism that can be used to reduce the amount or prevent the occurrence of RA in organizations.

Traditionally outcome variables associated with the experience of RA have been divided into two classes: affective and behavioral. Affective outcome variables will be discussed first.

Many affective outcome variables have been examined by researchers: life satisfaction, job dissatisfaction/satisfaction, self-esteem, depressed mood, tension, anxiety, stress, etc. The variable that has been studied most frequently and will be the focus of this discussion is job satisfaction/dissatisfaction. Most studies have found significant relationships between RA and satisfaction. The strength of these relationships has varied from slight to strong. It should be obvious that the relationship found between two variables are in some way dependent on the instruments used to measure the variables. Some researchers have treated job satisfaction as a unidimensional construct and measured it accordingly (e.g., Beehr, 1976; Greene & Organ, 1973; Hamner & Tosi, 1974; and Lyons, 1971). Others have posited that job satisfaction is a multidimensional construct and should be measured as such.

Of all the studies that used unidimensional satisfaction measures, Tosi (1971) is the only one in which there was not a significant relationship between job satisfaction and RA. The magnitude of other significant correlations ranged from .08 ($n = 651$, $p < .05$) in a study by Beehr (1976) to .52 ($n = 152$, $p < .001$) in a study by Miles and Petty (1975). The average correlation was .32 across samples ranging in size from 61 to 651.

A variety of other research efforts examined the relationship between RA and measures of satisfaction. Rizzo et al. (1970) and House and Rizzo (1972) investigated the relationship between RA and satisfaction with what can be called the Herzberg hygiene factors (pay recognition,

adequacy of authority, social environment, job security, and personal recognition) and the other Herzberg factors, the motivators (advancement opportunity and autonomy). All the correlations were significant and ranged from -.22 (job security) to -.57 (social environment). Ivancevich and Donnelly (1974) investigated the relationship between role clarity and satisfaction with self-actualization, autonomy, and esteem for three occupational groups: salesmen, supervisors, and operating employees. The correlations were all significant for the sample of 86 salesmen, ranging from .61 for satisfaction with autonomy to .38 for satisfaction for self-actualization. None of the relationships were significant for the supervisors (n = 48) or for the operating employees (n = 127).

A frequently used instrument designed to measure various dimensions of job satisfaction was developed by Smith, Kendall, and Hulin (1969). This instrument is called the Job Description Index (JDI) and is composed of scales measuring satisfaction with work itself, pay, co-workers, promotion opportunities, and supervision. For a more complete understanding of the relationship between satisfaction and RA, each job satisfaction dimension should be examined in conjunction with RA because the use of a unidimensional job satisfaction instrument would not enable a researcher to determine which satisfaction facets were most strongly influenced by RA. The studies which have used the JDI or parts of it are listed in Table 1.

Of major interest to the author for reasons that will be explained shortly are satisfaction with work itself, intrinsic job satisfaction, and satisfaction with supervision/authority. As can be seen from examining Table 1, RA seems to be quite consistently related to a significant extent with dissatisfaction with work itself and supervision.

Table 1.--Correlations Among Role Ambiguity and Job Descriptive Index Satisfaction Measures.

	n	Pay	Work Itself	Co-Workers	Supervision	Promotions	Overall Satisfaction
Keller (1975)	51	-.12	-.54***	-.22	-.20	-.24	
Szilagyi, Sims, & Keller (1976)	1123	-.09*	-.24***	-.15***	-.34***	-.28***	
Szilagyi et al. (1976) administrative personnel	53	-.37*	-.42*	-.19	-.47***	-.17	
Szilagyi, et al. (1976) professional personnel	224	-.08	-.32***	-.21*	-.43***	-.38	
Szilagyi et al. (1976) technical personnel	116	-.11	-.43***	-.18**	-.53***	-.44***	
Szilagyi et al. (1976) clerical personnel	224	-.14*	-.33***	-.18**	-.24***	-.22**	
Szilagyi et al. (1976) service personnel	240	-.11	-.21**	-.17**	-.31***	-.26***	
Brief & Aldag (1976)	77		.16		.09		
Johnson & Stinson (1975)	92		-.21*[a] -.30**[b]				-.21*[a] -.28**[b]

[a]Task ambiguity.

[b]Feedback ambiguity.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

A variety of behavioral outcome variables have been examined: absenteeism and turnover are two that are frequently examined. In general, significant negative relationships have been found between those variables and RA. The performance-RA relationship has also frequently been investigated but a consistent pattern of results has not emerged. Because RA has been defined as a lack of role relevant information, role theorists have hypothesized that the absence of role relevant information would be associated with poorer or decreased performance. In a lab study using college students as subjects, Smith (1957) found that work groups (n = 5) whose member roles were ambiguously defined solved fewer problems (item identification) than non-ambiguous groups. However, Smith's (1957) results have to be viewed with caution because his definition of ambiguity is quite different than that of other researchers in the field. An experimental design was conceived to induce ambiguous role expectations in five subject groups. This was done by having one group member (a confederate of the experimenter) remain silent. It was thought that having one member always remain silent would cause that person's future behavior to be unpredictable, thus inducing ambiguous role expectations. Since RA is generally thought as not knowing what constitutes appropriate role behavior, the generalizability of Smith's (1957) results seems limited.

Cohen (1959) also investigated relationship between ambiguity and productivity. In his study, it was found that ambiguous definition of a task resulted in a decrease in productivity for telephone operators. Once again the results must be interpreted with caution because ambiguous definition of task is not exactly the same as RA, even though they do seem to be quite similar.

Locke (1968) in a review of a series of laboratory studies dealing with goal clarity concluded that goal ambiguity was associated with significantly lower performance in 9 of the 11 studies. The concept of goal clarity reported by Locke (1968) seems quite similar to Cohen's ambiguous task definition. Goal clarity was operationalized as specific performance goal conditions. Goal ambiguity was induced by giving the vague instructions of "do your best."

From this brief overview, it can be seen that RA is associated with and may cause poor performance in laboratory situations. The results of field studies are not as supportive concerning the RA-performance relationship. Of the eight studies examining this relationship, only two reported significant correlations between RA and performance. Greene and Organ (1973) examined the relationship between role accuracy and supervisory performance evaluation and obtained significant results ($r = .35$, $p < .001$). Brief and Aldag (1976) postulated and found a negative relationship between RA and performance as determined by supervisory ratings ($r = -.23$, $p < .05$). The other six studies did not report significant results. Tosi (1971) looked at the relationship between RA and loan office effectiveness. Johnson and Graen (1973) examined the difference in performance ratings between role acceptors and role rejectors (who were characterized as experiencing more ambiguity) in clerical/secretarial type jobs. No significant differences were found. Szilagyi, Sims, and Keller (1976) examined RA-performance relationship. Performance was measured by supervisory ratings of various aspects of task behavior (e.g., quantity and quality of work, dependability, attendance, etc.). Szilagyi et al. (1976) did not find a significant relationship. Schuler (1975, 1977) and Schuler, Aldag,

and Brief (1977) all failed to find a consistent relationship between RA and performance. Performance was once again operationalized by supervisory ratings of performance.

In summary, it appears that the relationships between RA and performance are much less consistent in organizational settings than they are in laboratory settings. It is possible that the interaction of many unexamined variables such as tenure and employee ability among others could disguise or confuse the nature of the relationship between RA and performance. It also may be conceivable that supervisory performance ratings are not a true indication of actual employee performance.

From the preceding discussion, it should be obvious to the reader that RA has been found to be consistently related to job dissatisfaction and occasionally related to poor performance. Thus it would seem beneficial both for the individuals and organizations involved to reduce the amount of experienced RA. There seem to be three basic ways by which this can be done. The first way has been discussed before: increased organizational formalization. The second way would be through increased employee participation in decision making. By definition RA is the absence or unclear communication of role relevant information. Employee participation in decision making is thought to be positively related to the amount of feedback and information about task accomplishment available and thus is hypothesized to be negatively related to RA. Although an in-depth analysis of the effects of participation is beyond the scope of this paper, the few studies that examined the RA-participation relationship have reported significant results (French &

Caplan, 1972). Rogers and Molnar (1974) reported that joint-decision making among top level administrators was associated with less RA.

Role Ambiguity and Leader Behavior

The third method by which RA can be reduced is through leader behavior. Leader behavior has been studied for decades. In this century, among the first leadership theories concentrated on determining if successful leaders possessed specific traits that could identify them. These efforts were largely unsuccessful. In the 1950s researchers began to study actual leader behavior. Ohio State University was an early center for leadership research. Early Ohio State theorists (Fleishmen, Harris, & Burtt, 1955; Halpin & Winer, 1957) posited that there were two leadership dimensions: consideration and initiating structure.

Consideration has been defined as,

> behavior indicating mutual trust, respect, and a certain warmth and rapport between the supervisor and his group. This does not mean that this dimension reflects a superficial 'pat-on-the-back,' 'first name calling' kind of human relations behavior. This dimension appears to emphasize a deeper concern for group members' needs and includes such behavior as allowing subordinates more participation in decision-making and encouraging more two-way communication (Fleishmen & Harris, 1962, pp. 43-44).

Of greater theoretical interest to the author is the initiating structure (IS) dimension of leadership. Fleishman and Harris (1962) define IS as

> behavior in which the supervisor organizes and defines group activities and his relation to the group. Thus, he defines the role he expects each member to assume, assigns tasks, plans ahead, establishes ways of getting things done, and pushes for production. This dimension seems to emphasize overt attempts to achieve organizational goals (Fleishman & Harris, 1962, p. 44).

McGregor (1944) talked about the dependency relationship between superiors and subordinates and the subordinates' needs for security.

McGregor listed several conditions of security, one of which was knowledge. More specifically, the subordinate requires several types of knowledge: knowledge of overall company policy and management philosophy; knowledge of procedures, rules and regulations; knowledge of requirements of the subordinate's own job (his duties, responsibilities, and place in the organization); knowledge by the subordinate of the superior's opinion of his performance; and advance knowledge of changes that may affect the subordinate. McGregor states that it is the duty and responsibility of the leader to provide this knowledge/information to the subordinate.

When looking at McGregor's assertions in conjunction with the definition of leader IS, one could surmise that one of the most important functions of a leader is to prevent the experience RA from arising in the first place and/or provide information and instructions that will reduce its intensity. If this occurs, it would seem likely that the negative consequences associated with the experience of RA could be ameliorated. Of course leaders have functions other than RA prevention or reduction to fulfill. House (1971) formulated a theory of leadership. It was developed to explain the relationships between leader behavior and subordinate satisfaction, motivation, and performance. In a review of the path-goal literature, House and Dessler (1974, p. 30) state, "A basic proposition of the theory is that one of the strategic functions of the leader is to enhance the psychological states of subordinates that result in motivation to perform or in satisfaction with the job." House and Dessler list six strategic leader functions, two of which are directly concerned with preventing the experience of RA from occurring and/or reducing its prevalence and intensity. It is

assumed that the leader can enhance subordinate psychological states by decreasing RA thereby increasing motivation that will result in increased satisfaction.

Two criteria by which leaders are most frequently judged are productivity (of work group, department, etc.) and subordinate morale (satisfaction, esprit de corps, cohesiveness, etc.). Early leadership research attempted to find the "best" leadership style. However it soon became obvious that there was not one "best way." What characterized an effective leader in one situation was not necessarily effective in another situation. For example, the leadership style used by a drill instructor in the Marines would probably not be the optimal method to use when applied to a group of college professors. When researchers asked what characterized an effective leader, they got different answers depending upon whom they asked. A leader's superiors were generally more satisfied with a leader who exhibited high IS and had high work group production figures. However the evidence indicated that the leader's subordinates were more satisfied with a leader who exhibited high consideration (Korman, 1966).

Leadership theorists were thus presented with evidence that indicated the relationship between leader behavior and subordinate satisfaction and performance was not a simple one. Other factors affected the nature of the relationship. The search for and the investigation of these variables resulted in the development of what are now called the contingency models of leadership. One of the first of these models was developed by Tannenbaum and Schmidt (1958). This model assumed leader effectiveness was dependent upon characteristics of the leader, of the subordinates, and of the situation/environment in which

the actors were found. Situational factors considered to be of importance included type of organization, groups size and effectiveness, and nature of the task typically performed. Feidler (1964) also proposed a contingency model of leadership which included as one of its main elements the concept of task structure. Another contingency model, House's (1971) path-goal model of leader behavior, also included task structure as an important variable to examine when investigating leader effectiveness.

Since three of the major contingency models include task structure within their theoretical framewords, this author considers that a closer examination of task structure be undertaken. Feidler (1967) and House and Dessler (1974) measured the degree of task structure by a technique which involved judges ranking jobs on each of four dimensions of task structure: clarity of goals, multiplicity of path to goals, verifiability of decision, and specificity of solutions. Thus it seems that a job with low task structure involves more variability, ambiguity, complexity, and equivocality. As such, the construct of task structure seems to be related to RA. If the reader will recall, RA has been defined as the degree to which clear information is lacking regarding role expectations and methods for fulfilling role expectations (i.e., getting the task accomplished). A low structure task is characterized by unclear goals, many paths to goals, inability to verify correctness of decisions, and lack of a specific solution for the problem. Thus a job high in RA and one with low task structure seem to be very similar. The review of the RA literature indicated that RA is not beneficial for individual or organization functioning.

The questions that will now be addressed are ones that are central to this thesis--What are the consequences of a leader's attempt to reduce the ambiguity present in a given job situation? Arguments presented earlier indicated that if a worker is unclear about job requirements, performance will be less than optimal. Similarly, if the individual is unsure of how to do his job, he may not be able to anticipate rewards and punishments, a situation that may elicit anxiety and negative affect toward the work situation. How can a leader reduce ambiguity? If the reader will recall the definition of IS, hopefully it will become apparent that IS behavior is concerned with the clarification of expectations and the reduction of ambiguity and uncertainty so that organizational goals can be achieved most effectively. If this premise is accepted, one could logically expect that under conditions of high RA (low task structure), leader IS would result in increased subordinate motivation that should manifest itself in higher levels of satisfaction and performance.

Unfortunately the research evidence is not overwhelming in the support of this hypothesis. Some evidence indicated that structuring behavior by a leader was significantly correlated with group productivity and effectivness (Halpin & Winer, 1957; Dunteman & Bass, 1963). Other research however, indicated that IS by a leader was associated with lower group effectiveness (Liker, 1961; Cummins, 1971). Many other studies indicate no significant relationships between IS and objective measures of performance (see Korman, 1966, for a more complete review).

A similar pattern of results emerged when the relationship between IS and measures of subordinate satisfaction was examined. As theory would predict, leader IS behavior was negatively related to

satisfaction in several studies (Halpin, 1954; Filley & House, 1969). Fleishman and Harris (1962) found IS to be positively correlated with subordinate grievances and turnover, which are often interpreted as indices of dissatisfaction. House, Filley, and Gujarati (1971) and House, Filley, and Kerr (1971) reported positive correlations between IS and satisfaction.

An explanation for these contradictory results was articulated by Korman (1966). Korman reviewed the IS and consideration literature and concluded that the use of such descriptive terms for leader behavior was not conducive to valuable research because of the equivocality of the results. Korman voiced several criticisms of the research, the first and most important of which concerned the lack of attention to situational variables (supervisor, subordinate, and task characteristics) that could function as moderators. Of particular interest to the author are subordinate personality characteristics, occupational level of subordinates, task structure, and RA. According to Korman, an examination of such potential moderator variables in conjunction with initiating structure and outcome variables could lead to more clear-cut findings.

Moderators of the Role Ambiguity--Leader Behavior Relationship

Subsequent research efforts did indeed examine the effects of hypothesized moderator variables. Beer (1966) noted that individuals with strong higher order needs were more motivated by IS than were individuals with low higher order need strength. For example, an individual with a high need for achievement might welcome structuring behavior if that individual expected that such behavior would help him/her achieve his/her goals.

House, Filley, and Gujarati (1971) and House, Filley, and Kerr (1971) reported strong positive correlations between IS and satisfaction among workers at higher organizational levels. Other studies that reported negative correlations were typically sampled from lower organizational levels.

The moderating effects of task structure are of particular interest to this author. It does not seem farfetched to include the theoretically similar concepts of task uncertainty, task complexity, and role clarity under the rubric of task structure. In general, results seem to indicate that the more unstructured, uncertain, complex, and ambiguous a task is, the more subordinates will welcome structuring behavior from a leader. This ties in with the results reported in the paragraph above. House and his colleagues (1971) reported that higher level employees were more satisfied with leader structuring behavior. Schuler (1975) posited that upper level jobs by their very nature are concerned with solving non-routine problems and thus are more unstructured and ambiguous. Schuler's assertions could explain the results of House.

Why would individuals with unstructured tasks and/or ambiguous roles welcome IS and those with structured tasks not welcome IS behavior? If the task is unstructured or the subordinate's role is unclear, it is assumed that the paths that lead to goals are also unclear. Since goal attainment is typically associated with rewards, leader behavior which facilitates goal attainment is generally viewed as beneficial by subordinates. Conversely, if the task is structured and role expectations are clear, path to goals are known, thus making leader IS unnecessary to facilitate goal attainment and reward procurement. Therefore leadership theorists have surmised that employees with structured tasks will

not be satisfied with IS behavior and such behavior will not increase performance effectiveness and indeed may reduce it (House, 1971).

The remainder of the literature review will be devoted to reporting studies in which role variables (ambiguity or clarity) or task structure were examined as moderators of the relationship between leader behaviors and outcome variables of satisfaction and the relationship between leader behaviors and outcome variables of satisfaction and performance. Studies which provide support for the hypothesis that RA or task structure moderate the leader IS--subordinate satisfaction and performance relationship will be presented first. Studies which do not provide support for this hypothesis will be presented last.

Badin (1974) reported that task structure moderated the IS-group performance effectiveness relationship. There was a significant negative correlation ($r = -.56$, $p < .08$) in the high task structure condition but a non-significant relationship in the low task structure condition. Badin reported non-significant relationship between IS and satisfaction in each of the task structure conditions.

Anderson (1966) used a structured and unstructured task to examine the effects of leader behavior on group member attitudes and group task performance in an experimental setting. He found that IS behavior by the leader positively related to performance on both tasks ($r = .36$, $r = .39$, $p < .05$), a finding contrary to what was hypothesized. A possible explanation for this unexpected finding can be ferretted out when one examines the tasks used. Anderson's unstructured task was writing a "creative story" based on a Thematic Apperception Test (TAT) picture. What Anderson designated as a structured task one in which an American and Indian college student under the direction of an American

student leader had to develop a policy of staffing a manufacturing plant in India with competent employees without offending residents and workers by violating caste obligations. This task seems to have most of the hallmarks of an unstructured task: multiplicity of paths to goals, lack of solution specificity, and uncertain verifiability of decisions. This could explain Anderson's results and provide support for the hypothesis that task structure moderates the IS--satisfaction relationship.

Schriesheim and Murphy (1976) tested the effects of role clarity as a moderator of the leader IS behavior-satisfaction and performance relationships. Specifically it was hypothesized that, "for subordinates with less clear role perceptions, leader structure would help them perform their jobs, and thus it would increase their satisfaction and performance" (Schriesheim & Murphy, 1976, p. 636). Role clarity was measured by the Rizzo, House and Lirtzman (1970) 6-item instrument. Results indicate partial support for the hypothesis. Although the hypothesized moderating effects of role clarity on the IS-satisfaction relationship were not found to be significant, role clarity did apparently moderate the IS behavior-performance relationship. The correlation was sighificant ($r = -.53$, $p < .05$) under conditions of high role clarity and non-significant under conditions of low role clarity. This finding lends support to the conjecture that if workers know their jobs well (low role ambiguity), any IS behavior by a leader will be viewed as redundant and may cause resentment that could be reflected in restriction of production or performance.

The path-goal theory of leadership formulated by House (1971) deals more explicitly with the moderating effects of role ambiguity and task structure. One of the central components of the theory is the

concept of path instrumentality, defined as "the cognition of the degree to which following a particular path (behavior) will lead to a particular outcome" (House, 1971, p. 323). Successful goal attainment can also lead to the receiving of valued rewards, and there is a path instrumentality associated with this relationship. According to the path-goal theory, the individual estimates the probability that a behavior will lead to an outcome and also estimates the probability that the outcome will be associated with valued rewards. The magnitude of these path-instrumentality probability estimates determines the person's motivation to perform. If the individual experiences RA or is working on an unstructured task, where the path-goal relationships are ambiguous, it is expected that path instrumentality estimates are low. In such a case it is assumed that the individual will not be highly motivated and task performance will suffer. According to the path-goal theory of leadership, "the motivational functions of the leader consist of increasing personal payoffs to subordinates for work goal attainment, and making the path to these payoffs easier to travel by clarifying it . . ." (House & Dessler, 1974, p. 31). House (1971) is even more explicit, stating, "by clarifying path-goal relationships, the leader's behavior will have positive motivational effects to the extent that it reduces role ambiguity . . ." (p. 324). Therefore it seems that under conditions of high RA and low task structure, leader effectiveness and satisfaction with leader may be associated with the leader's ability to reduce uncertainty and ambiguity and clarify paths to goals. House hypothesized that leader behavior that reduced the amount of experienced RA would lead to increased subordinate motivation because RA is associated with, in path-goal terms, low path instrumentality.

Several studies have been conducted which have tested hypotheses of the path-goal theory of leadership. House found that IS behavior was positively related to the subordinate satisfaction and negatively related to RA. It was also found that when the variance due to RA was partialled out, the IS-satisfaction correlation was no longer significant. House noted that RA was not actually measured, but rather the researchers assumed that the work done by the sample population was by nature ambiguous. In a second sample in the same study, House (1971) hypothesized that job autonomy and job scope would moderate the IS-satisfaction-performance relationship. It was assumed that an autonomous job and/or one with a wide scope (of activities) would be characterized by ambiguity. Results indicated that the correlations between IS and the various satisfaction measures employed "increased monotonically with increases in job autonomy, and that the correlation between extrinsic job satisfaction and initiating structure is significantly higher for groups with high autonomy than with groups with low or medium autonomy" (House, 1971, p. 328). When the performance results were examined it was clear that as the amount of autonomy increased, the strength of the IS-performance relationship decreased. Once again, however, there was a significant difference between the high and low autonomy groups on the performance measure of quantity.

Dessler (1972) looked specifically at the moderating effect of task ambiguity. He found the strength of the relationship between IS and satisfaction decreased as the amount of task ambiguity decreased. This finding supports the path-goal theory hypothesis.

House and Dessler (1974) reviewed several studies which they felt provided evidence in support of the path-goal theory. Beer (1966)

found that significant positive correlations between IS and subordinate initiative for clerical workers engaged in non-routine work. Mott (1972) found that the correlations between leader IS and organizational effectiveness were moderated by task structure. In the same article, House and Dessler (1974) conducted a study of their own and reported that task structure did moderate the relationship between instrumental (IS) leadership and intrinsic and extrinsic satisfaction.

Szilagyi and Sims (1974) examined two different occupational levels in a hospital setting and assumed on an a priori basis that the higher level employees had jobs that were more unstructured and ambiguous. They found that these upper level employees were more satisfied with work and supervision (IS) than were lower level employees whose jobs were assumed by the researchers to be more structured.

A Review of the Evidence

To summarize, it seems that there is some evidence that indicates RA or task structure could explain more clearly the nature of the relationship between leader IS and satisfaction and performance.

However, not all studies supported the hypothesized moderating effect of RA and/or task structure on the IS-satisfaction and performance relationship. The following studies are those where support for the above hypothesis was not found.

Shaw and Blum (1966), in an examination of Fiedler's contingency model of leadership, reported findings which were contrary to what would be expected from path-goal theory. They found that directive leadership (virtually equivalent to IS) was more effective than non-directive leadership in terms of increased group satisfaction, cooperation, and

performance when the experimental task was highly structured. Non-directive leadership was most effective when the group task was unstructured. Shaw and Blum reasoned that when the task was structured and there was one obvious, optimal solution, non-directive leadership (rewarding, giving support) would possibly interfere with goal directed behavior.

In a lab study, Lowin, Hrapchak, and Kavanagh (1969) examined the effects of different levels of IS and consideration behavior by a leader on subordinate satisfaction and productivity. Results indicated that there was not a significant relationship between IS and satisfaction and productivity. Lowin et al. speculated that the failure to obtain significant results could have been a function of the type of experimental task that was used. The subjects had to "gap" spark plugs and keep a record of their work for a one hour period. This seems to be a relatively simple, structured, unambiguous task. Given such a task, it is conceivable that, in the words of Lowin et al., "the simple task may not have allowed structure to affect productivity or quality since the imposed structure could not improve performance" (1969, p. 248).

Kavanagh (1972) hypothesized that task complexity was a conceivable moderator of the relationship between leader behavior and subordinate satisfaction. Kavanagh used a role projection technique involving the video taping of two actors, one portraying a subordinate and the other portraying a supervisor. Experimental subjects were asked to imagine themselves in the role of the subordinate and answer a questionnaire accordingly. Among the questions was one that asked the subjects whether an appropriate level of structuring behavior was displayed by the leader. It was hypothesized that in the high complex task

condition, the subjects would report an inappropriate (not enough) amount of structuring behavior. This hypothesis was not supported.

Stinson and Johnson (1975) found no support for the hypothesis that task structure moderated the IS-satisfaction relationship. Downey, Sheridan, and Slocum also failed to find support for the same hypothesis in their 1975 study in addition to reporting lack of support for the hypothesized IS-performance relationship. Sims and Szilagyi (1975) reported a marginally significant difference ($p < .06$) between the IS-work satisfaction correlations of hospital personnel whose work was characterized by high and low ambiguity.

To review, RA has been consistently associated with outcome variables, both behavioral (e.g., performance) and affective (e.g., satisfaction), that seem to be dysfunctional to both individuals and organizations. Because of the dysfunctional nature of RA, it probably behooves organizations to reduce the amount of RA experienced by their employees. One way that this can be done is through structuring behavior initiated by the leader. Although it has been traditionally assumed that employees (i.e., subordinates) do not like IS leader behavior, some research evidence indicates employees do not always react negatively to IS. In some situations they may react positively to such behavior and show higher levels of satisfaction with leadership and higher levels of performance (Anderson, 1966; Beer, 1966; House, Filley, & Kerr, 1971; House, Filley, & Gujarati, 1971; House, 1971; Mott, 1972; Dessler, 1972; House & Dessler, 1973; Badin, 1974; Schreisheim & Murphy, 1976).

However, support for this propostion is far from unequivocal, with several studies failing to show that IS was significantly associated

with higher levels of satisfaction and performance under conditions where employees experienced high amounts of RA (Shaw & Blum, 1966; Kavanagh, 1972; Downey, Sheridan, & Slocum, 1975; Sims & Szilagyi, 1975; Stinson & Johnson, 1975).

The author feels it may be beneficial to point to the shortcomings of some of the five reported studies which failed to support the notion that RA moderates the IS-satisfaction and performance relationship. Three of the studies cited were correlational field studies and as such are suspect because of the lack of control of extraneous variables for which field studies are notorious. The Downey et al. (1975) study in particular is considered to be flawed because of the method by which task structure and RA were "measured." In reality, these important variables were not measured at all, rather the researchers assumed that the jobs of managers were unstructured (i.e., low task structure) while the jobs of operating employees were structured (i.e., high task structure). This may not have been the case at all. The marginal level of significance reported by Sims and Szilagyi (.06) lends support to, rather than detracts from, the hypothesized moderating effect of RA.

Shaw and Blum (1966) and Kavanagh (1972) conducted laboratory experiments to test their proposition. Although lab studies in this area have seldom been done, we must not heap praise on these researchers too quickly. The Shaw and Blum study is rife with shortcomings. The leadership manipulation consisted of telling a naive subject to act in either a directive or a non-directive manner minutes before the experimental session began. The three levels of task structure were created by manipulating only one of the four dimensions of task structure--

solution specificity. Because of these problems, one should regard the results of Shaw and Blum with suspicion.

Kavanagh (1972) used a role projection technique, a procedure that involved subjects viewing a videotape and then being asked to respond as if they were in the situation. There are some doubts regarding the efficacy of this procedure. However the major flaw in this study revolved around the manipulation of task complexity. This variable was measured by a single item with a 5-point response scale. Subjects in the high task complexity condition had a mean response on this item of 2.35, with a response of "2" corresponding to "fairly simple--most people could do it with little training." Thus it seems that the task complexity manipulation did not work, casting further doubts on the results.

Objectives

At this point it is only fair to point out that the cited studies which supported the premise that RA could serve as a moderator are not without defects. Many were correlational field studies. Only one of the studies cited as supporting the RA as moderator hypothesis was a lab study (Anderson, 1966). However, Anderson did not view the results as supporting the experimental hypothesis and only a reinterpretation of the results allows this author to consider this study to be supportive. Lack of control over important variables in most research efforts has been the norm. The cited laboratory studies, whether they were supportive or unsupportive, cannot be considered true tests of the major premise being advanced here. In no study has RA (or task structure) been examined as a moderator of the relationship between IS and satisfaction and IS and performance. What makes this thesis a

unique research effort is the decision of the author to specifically examine this relationship. Furthermore, glaring in its omission has been any study that has examined both satisfaction with task and satisfaction with leader in addition to examining performance. The effects of personality variables as moderators have not been examined often enough to determine whether they too may affect reactions to leader behavior under different conditions of RA.

Three personality variables will be examined as moderators in this study. They are need for achievement (nAch), need for independence (nInd), and need for clarity (nCl). The rationale for scrutinizing these variables is as follows. Individuals with a high need for achievement are characterized by having internalized personal standards of excellence. These individuals like to attain high performance levels in all phases of their lives (McClelland, Atkinson, Clark, & Lowell, 1953). It is being proposed here that such individuals will find an ambiguous situation distasteful in that the ambiguity will prevent or hinder them in achieving high performance levels. Inasmuch as it is thought that high nAch individuals will not like situations which are experienced as ambiguous, it follows that these individuals would welcome leader behavior that would reduce that ambiguity. Leader IS could be one such behavior. The need for independence is defined as the desire for individuals to be able to make behavioral choices without outside agents or factors controlling their lives. It is assumed that individuals with a high nInd would react more positively to situations characterized by ambiguity because the confusion resulting from the ambiguity would enable them to define the situation for themselves and thus act with more freedom. These individuals would prefer not to see IS behavior.

Need for clarity (also called intolerance for ambiguity) is a measure which deals with the tendency of individuals to perceive ambiguous situations as threatening. Individuals with a high need for clarity (low tolerance of ambiguity) are thought to react negatively to ambiguity (Lyons, 1971). Insofar as this reaction takes place, it seems likely that these high nCl individuals would react positively to leader IS behavior in that it can reduce the amount of experienced ambiguity.

In order to test whether RA does indeed serve as a moderator, a 2 x 2 experimental design will be used. There will be two levels of RA (high and low) and two levels of IS (high and low). Assessed will be the effects of the manipulations of RA and IS on the three dependent variables of satisfaction with task (TASKSAT), satisfaction with leader (LEADSAT), and task performance (PERFORMANCE). The personality variables of interest are need for achievement (nAch), need for independence (nInd), and need for clarity (nCl). The experimental design is presented schematically in Figure 2.

Hypotheses

Based on the research evidence presented, the following hypotheses will be tested in this study.

Hypothesis 1: There will be interaction between RA and IS such that:

a. For high RA conditions, high IS subjects will exhibit higher levels of TASKSAT, LEADSAT, and PERFORMANCE than subjects in the low IS condition (this is a comparison of Cell 1 with Cell 3).

b. For low RA conditions, low IS subjects will exhibit greater levels of TASKSAT and LEADSAT than subjects in the high IS condition (this is a comparison of Cell 2 with Cell 4).

Leader Initiating Structure	Role Ambiguity: High	Role Ambiguity: Low
High	Cell 1 High RA High IS	Cell 2 Low RA High IS
Low	Cell 3 High RA Low IS	Cell 4 Low RA Low IS

Figure 2. Factional design of the experiment.

c. For high IS conditions, high RA subjects will exhibit greater levels of TASKSAT and LEADSAT than subjects in the low RA conditions (this is a comparison of Cell 1 with Cell 2).

d. For low IS conditions, low RA subjects will exhibit greater levels of TASKSAT and LEADSAT than subjects in the high RA condition (this is a comparison of Cell 3 with Cell 4).

Hypothesis 2: Need for achievement will interact with IS and RA such that subjects with a high nAch will have higher levels of TASKSAT and LEADSAT under conditions of high RA and high IS than will subjects with a low nAch.

Hypothesis 3: Need for clarity will interact with IS and RA such that subjects with a high nCl will have higher levels of TASKSAT and LEADSAT under conditions of high RA and high IS than will subjects with a low nCl.

Hypothesis 4: Need for independence will interact with IS and RA such that subjects with a high nInd will have higher levels of TASKSAT and LEADSAT than will subjects with a low nInd.

METHOD

Subjects

The subjects used in this thesis were 36 male and 36 female undergraduates obtained from the human subject pool at Michigan State University during the Spring quarter of 1978. Persons enrolled in this pool were enrolled in introductory psychology classes and earned extra credit for participating in research. Two subjects participated per experimental session. A confederate of the experimenter was also present and acted the part of a real subject.

Design

The experimental design was a 2 x 2 factorial with two levels of RA and two levels of leader IS. A description of how these variables were operationalized can be found in the last part of the Method section under the heading Pilot Testing.

Experimental Task

The nature of the task depended upon the experimental condition. In the low RA condition, the instructions read by the experimenter told the subjects to compile a list of the advantages and disadvantages of each energy source for which they had an article. In this condition the subjects also had a typed copy of an outline format. The instructions suggested that this outline might be helpful in compiling their list of

advantages and disadvantages. The articles about energy in this low RA condition were short, descriptive, non-technical, and full of pertinent information that the subjects could readily uncover. A copy of these instructions is found in Appendix A.

In the high RA condition, the introductory statement read to the subjects by the experimenter told the subjects to write a report (similar to an essay), making a recommendation concerning a comprehensive energy plan for a "city of the future." No outline was provided and the articles the experimenter gave the subjects in the high RA condition were longer, technical, and tangentially related to energy needs of a city, thus making the task more difficult, confusing, and ambiguous to the subjects. A copy of these instructions is found in Appendix B.

In both the low and high RA conditions, the subjects had forty-five (45) minutes to read what they wanted and write their list (low RA) or their report (high RA). Each subject worked alone on the task. The real subjects were not allowed to communicate with each other or with the leader (the confederate) in any way.

Procedure

Greeting Subjects

The experimenter telephoned the subjects and asked them to report to the experimental room at a certain time. When the subjects arrived, the experimenter invited them in and asked them to sit down at the tables. A very brief description of the experiment was read to the two subjects and the confederate prior to their filling out the consent forms.

Experimental Procedure

Once the consent forms had been collected, the experiment began. Depending upon the RA condition, the experimenter read one of the two introductory statements. In the high RA condition, it was hoped that subjects would be uncertain about their role in the experiment. Therefore, they were read a short, rather vague introductory statement. In the low RA condition, it was the intention of the experimenter to insure that the subjects had a clear understanding of their roles. In order to accomplish this, a detailed introductory statement was read. Recall that bureaucratic formalization can be used to reduce the amount of RA. Reading instructions is a form of formalization. Subjects were also given a typed copy of the instructions along with a suggested outline format.

Since the introductory statement mentioned that a group leader would play an important role in the experiment, the experimenter appointed the confederate as the group leader, explaining to real subjects that the confederate was in one of the researcher's classes and the researcher felt that the confederate (who was not identified as such) knew the subject matter well enough to be an effective leader. This procedure was followed in both the low and high RA conditions.

The experimenter then asked the subjects and the confederate to complete the personal and personality variables on the research questionnaire. This was done before the experiment commenced in order to reduce the possibility that the experimental manipulations would influence subjects' response sets. After these scales were completed, the experiment began. The subjects were allowed to read through the articles for five (5) minutes. Then the experimenter had them stop reading and

complete the RA manipulation check. This interruption was incorporated into the experiment because it was felt that perceptions of RA would be assessed most accurately a short time after the experiment began. The five minute mark was chosen because it was thought that a time period of longer than five minutes would enable subjects to formulate some strategy and reduce the amount of RA. In addition, it was necessary to assess perceptions of RA before any leader IS behavior was exhibited.

After the RA manipulation check scale was completed, the subjects were allowed to work on the experimental task. It was during this time period that the leader sent messages to the subjects. Two messages were sent very quickly after the RA manipulation check scale was completed. Another message was sent during the middle of this 40 minute time period. The last message was sent five (5) minutes before the subjects' work was collected. Forty-five minutes after the experiment began, the experimenter collected the work of the subjects' (list or report) and asked them to fill out the remainder of the research questionnaire. After this was done, the experimenter signed their credit cards, thanked them for their participation, and bid them adieu.

Description of the Measures

Data for this study can be categorized into four basic types of variables. The first will be called personal variables, a dimension which includes subjects' knowlege of alternative sources of energy and subjects' interest in learning about the alternative sources of energy. The second category includes the personality variables of need for achievement, need for independence, and need for clarity. The third class of variables are the independent variables--RA and leader IS.

Two scales were constructed and used as manipulation checks for the RA and leader IS manipulations. The last category of variables includes the dependent variables of satisfaction with task (TASKSAT), satisfaction with leader (LEADSAT), and task performance (PERFORMANCE). Data for all variables except the performance variables were collected through the use of a paper-and-pencil questionnaire. Each of these measures is discussed below and can be found in Appendix C. The research questionnaire can be found in Appendix D.

Knowledge of Alternative Sources of Energy

This measure was developed to determine whether the subjects self-reported amount of knowledge would be related to performance on the task. It was surmised that more knowledgeable subjects would be at an advantage in writing a report or compiling a list if they had had a previous exposure to the topic. A nine item scale was constructed. Each item dealt with a different alternative energy source (e.g., wind power, geothermal power, etc.). Subjects were asked to indicate how much they knew about each alternative energy source. This measure will be referred to as KNOWLEDGE in the remainder of the thesis.

Interest in Alternative Energy Sources

This one item scale was included in the questionnaire for the following reason. It seemed logical to assume that someone who was interested in alternative sources of energy might be more satisfied with the task itself and might also be more inclined to perform better on the task. This variable will be referred to as INTEREST.

The Autonomous vs. Social Recognition Achievement Scale (Strumpfer, 1975)

This measure was developed to distinguish between two types of achievement orientation. The first type is autonomous achievement, which refers to internalized personal standards of excellence which an individual sets for him/herself. Social achievement differs from autonomous achievement in that it refers to achievement for the purpose of obtaining fame or recognition, or achievement based competitiveness. For this thesis, the type of achievement of interest was autonomous achievement and only some of those items pertaining to autonomous achievement were used, resulting in the use of an eight item scale. Stumpfer reported a mean reliability of .86 for the five samples he tested. The range of the reliabilities was from .82 to .91.

Intolerance of Ambiguity (Budner, 1963)

This personality variable is also called need for clarity (Lyons, 1971) and will be referred to as such from now on. This measure deals with the tendency of individuals to perceive ambiguous situations as threatening. An individual with a low tolerance for ambiguity (high need for clarity) needs to simplify his/her environment, especially in conditions where there is confusion and uncertainty. The eight item scale used in this study was a shortened version of the Budner measure. Budner reported a mean reliability of .49 in the 13 samples he used (range of .39 to .62).

Need for Independence (Vroom, 1959)

This eight item scale was a shortened version of one used by Vroom. The items comprising this scale deal with importance to

individuals of being able to behave without outside factors controlling their lives. An individual with a high need for independence typically reports that it is important to him/her to do as he or she pleases.

Job Descriptive Index (JDI) (Smith, Kendall, & Hulin, 1969).

This instrument was designed to measure satisfaction with five different aspects of work: work itself, supervision, wages, co-workers, and advancement opportunities. For this research the type aspects that were of the most interest to the author were satisfaction with work itself (task) and satisfaction with supervision (leader). These scales are composed of a list of descriptive adjectives and phrases (e.g., pleasant, challenging, gives sense of accomplishment, etc.) to which the respondent can agree, disagree, or indicate uncertainty or ambivalence by placing a question mark next to the word. Satisfaction scores are determined by assigning numerical values to matching responses and summing. (For example, for satisfaction with task a "yes" response to the descriptive adjective "challenging" is worth three points. Conversely, a "yes" response to the descriptive adjective "frustrating" is worth zero points while a "no" response to "frustrating" is worth three points. A "?" response is always worth one point.) Some of the words on these scales were altered and others added in order to fit the task and sample. Smith et al. reported reliabilities of .73 and .77 for work satisfaction and satisfaction with supervision respectively.

Role Ambiguity Manipulation Check

RA was one of the two independent variables. It was important to discover whether the manipulation of this independent variable was executed properly, i.e., whether subjects in the low and high RA

conditions actually perceived their situations to be different. To determine this, a modified version of the Rizzo, House, and Lirtzman (1970) role ambiguity scale was used. The wording of some items was altered to fit the sample and experimental situation. Other items were constructed and added to the final 10 item scale. These latter items were added to tap subjects' perceptions of task requirements uncertainty. Rizzo et al. (1970) reported reliabilities of .78 and .808 for their two samples.

Leader Initiating Structure Manipulation Check

Leader IS behavior was the other manipulated independent variable. To determine whether subjects in the low and high leader IS conditions perceived leader behavior to be different, a manipulation check scale was developed. The construction of this 10 item scale was based upon leader behavior research conducted at the Ohio State University (Fleishman, 1957; in Stogdill & Coons, Eds., 1957). Fleishman and other researchers generated a long list of examples of leader behavior (e.g., he is easy to understand, he rules with an iron hand, etc.) that were presented to workers who were asked to indicate whether these behaviors were characteristic of their supervisors. Factor analysis indicated that two main factors emerged--consideration and initiating structure. The items that were used to construct the leader behavior manipulation check were chosen from the initiating structure list of behaviors presented in Fleishman, 1957 (in Stogdill & Coons, 1957).

Measurement of the Task Performance Criterion

Different tasks were used for the two RA conditions. In the low RA conditions, the subjects were to generate a list of the advantages and disadvantages of each alternative energy source. The quality of task performance was judged by comparing subjects' lists with lists compiled by individuals familiar with research and energy literature. The primary rating criteria was length and detail of the final product.

In the high RA condition, the experimenter told the subjects to generate a report concerning a recommendation of an energy plan for a city. The performance on this task was judged by using a set of dimensions constructed by Hackman, Jones, and McGrath (1967) designed to describe the general properties of group generated written passages. The major dimensions upon which a written report was rated in this research were action orientation, length, originality, optimism, quality of presentation, and issue involvement. Each report was rated by four trained raters. Each of the raters assigned each report a score of 1 (poor) to 5 (excellent) based upon how well the report measured up to the six dimensions used by Hackman et al. (1967). The lists generated by the subjects in the low RA condition were also graded from 1 to 5, primarily on the criteria of length and detail.

Pilot Testing

Role Ambiguity Manipulation

A review of the literature indicated that several factors could moderate the IS-satisfaction relationship. The two most frequently mentioned were RA (role ambiguity) and task structure; two variables

that can be highly correlated. For example, the role occupants of highly unstructured jobs often are vexed by RA. This author decided to combine these two variables to create a RA manipulation. This was done by first examining the definitions of RA and task structure discovered in the literature. For example, the definition of RA (Van Sell, Brief, & Schuler, 1977) has three parts, the first of which defines RA as "lack of clarity regarding the expectations associated with a role" (p. 3). The design of the study was a 2 x 2 factorial design with two levels of RA, high and low. For the low RA condition, the instructions read to the subjects by the experimenter were relatively clear with regards to what was expected of the subjects by the experimenter. A typed copy of the instructions and a suggested outline format were given to the subjects to refer to in case they were unsure of what was expected of them. In the high RA condition, the instructions were purposely made rather vague in order to make the expectations unclear. No other outline or copy of the instructions was provided. The other two parts of the RA definition, lack of clarity regarding methods for fulfilling known role expectations and lack of clarity regarding consequences of role performance, were manipulated so that subjects in the low RA conditions knew clearly what was expected of them while subjects in the high RA condition were given as little information as possible in order to induce the experience of uncertainty.

The same basic procedure was followed for task structure. The first dimension of task structure (House & Dessler, 1973) is clarity of goals. Goals were clearly stated in the low RA condition and goals were purposely left vaguely articulated in the high RA condition. The

same manipulations were done for path-goal multiplicity, decision verifiability and solution specificity.

In the pilot testing phase of the study, 20 subjects were run in both the high RA and in the low RA conditions. Analysis of the results of the RA manipulation check indicated that the two groups perceived the amount of experienced RA to be significantly different, $t(44) = 6.96$, $p < .001$.

Leader Initiating Structure Manipulation

The creation of the leader IS manipulation was done by first examining the Leader Behavior Description Questionnaire (LBDQ)-Form XII (1962). This one hundred item instrument contained 12 subscales. The subscale which applies most directly to this research is the initiation of structure subscale. On the basis of these descriptive statements, a decision was made to ask the subjects themselves what type of leader behaviors they would prefer. This was done by conducting an experiment with high and low RA manipulations but without a leader. At the end of the experimental session, subjects responded to a questionnaire that included a section which asked the subjects to specify leader behaviors which would help and which would hinder the subjects in finding the task more pleasant or enjoyable under the following dimensions: task assignment, establishment of goals and/or deadlines, suggested writing format, giving orders, and providing information. The construction of these five dimensions was based upon two factors, the initiation of structure subscale in the LBDQ-form XII and the context of the present experimental research effort. Also the dimension of "other" leader behaviors was included to gain additional information.

The statements of each subject under each of the above dimensions were typed on index cards. Individuals familiar with the leadership literature and with the present research coded these into categories of their own choosing. On the basis of the coding schemes, the author then constructed the specific statements which would constitute the leader behavior manipulations for both of the IS conditions. These specific statements would be used in experimentation as messages sent to the "subordinate" subjects by the "confederate" leader.

The rationale behind this techique was that a balanced amount of IS would be necessary. That is, for the high IS condition, the degree of IS in the high RA condition had to be enough to provide a certain amount of clarity without being so directive as to alienate the subjects. But at the same time, the same degree of IS had to be perceived by the subjects in the low condition as not being excessively directive. A similar balance had to be achieved for the degree of IS in the low IS condition.

A separate set of leader messages was constructed for each cell, giving a total of four. These leader IS messages are found in Appendix E.

Data Analysis

All scales were analyzed to obtain scale means, standard deviations, and where applicable, scale reliabilities. In addition, Pearson product moment correlations were computed to determine the degree of relationship of all the variables examined (personal, personality, independent, and dependent).

The primary method of data analysis was a 2 (Role-task ambiguity --high and low) by 2 (Leader initiating structure--high and low) analysis of variance design for each of the three dependent variables (satisfaction with task, satisfaction with leader, and task performance). Although there are three dependent variables, univariate analyses of variance, as opposed to a multivariate analysis of variance, were considered appropriate because the intercorrelations among the three dependent variables were considered low enough in magnitude to merit treating them as being independent. This technique was used to test for the hypothesized interactions.

In addition, t-tests were performed to evaluate the differences between the cell means specified in Hypotheses 1a to 1d. Manipulation checks were evaluated through one-tailed t-tests of condition means.

Finally, to test for the hypothesized moderating effects of the personality variables, a multiple regression analysis technique was employed, with the personality variables and the two and three way interactions of the personality variables and the independent variables entered into the regression equation first, followed by the independent variables.

RESULTS

Summary statistics are presented in Table 2. Due to the nature of the instrumentation, the reliability coefficient of only one of the three dependent variables was obtained. This value, the interrater reliability for the task performance measure, was .744. This figure represents the correlation between the judgments of two raters. The interrater reliability for the original four raters was .69. The data of two of the raters was discarded to enhance reliability. The reliabilities of other scales ranged from .863 for the 10 item RA scale to .593 for the 8 item nCl scale. This latter figure, while still less than desirable, represents an improvement over the reliability of .49 cited by Budner (1963).

An examination of some of the intercorrelations among scales indicates some support for the theoretical underpinnings of this research effort. For example, there was a significant correlation ($r = .265$, $p < .05$) between INTEREST and TASKSAT. It seems logical to conclude that there should be a positive relationship in that individuals who are interested in learning about alternative energy sources should report more satisfaction in a situation where they are exposed to information on the subject. More central to main issues addressed in this research effort is the finding of the negative correlation between RA and TASKSAT (-.204, $p < .10$). This finding indicates that individuals

Table 2.--Summary Statistics.

		Means	Standard Deviations	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
KNOWLEDGE (9 items)	(1)	22.40	4.84	.806									
INTEREST (1 item)	(2)	3.24	.86	.462***									
nInd (8 items)	(3)	35.03	5.05	-.005	-.092	.641							
nCl (11 items)	(4)	37.19	5.16	-.011	.031	-.159	.593						
nAch (8 items)	(5)	33.67	6.11	-.022	.039	-.048	.100	.764					
RA (10 items)	(6)	35.68	8.52	-.260**	-.045	.010	.059	-.127	.863				
IS (10 items)	(7)	33.93	7.94	.049	.154	.108	.140	.060	.009	.620			
TASKSAT	(8)	23.76	9.15	.110	.265**	-.208*	.053	-.145	-.204*	-.152			
LEADSAT	(9)	25.61	6.01	.011	.067	-.160	-.004	.003	-.143	.229*	.144		
PERFORMANCE	(10)	5.653[a]	2.11	.124	-.001	.080	-.049	-.023	-.093	.095	.153	-.072	.744

Note: Scale reliabilities on the diagonal. Scale intercorrelations are the off-diagonal elements.

[a]Scores on this scale were obtained by adding the ratings of two trained judges. The highest possible score is 10.

* $p < .10$.
** $p < .05$.
*** $p < .01$.

who experienced higher levels of RA were less satisfied with the task. The negative correlation between RA and KNOWLEDGE ($r = -.260$, $p < .05$) could be interpreted as evidence that those individuals who knew more about alternative sources of energy were more sure of what was happening in the experiment. Also of interest is the positive correlation between LEADSAT and IS ($r = .229$, $p < .10$). This suggests that satisfaction with the leader in the experimental setting is partly explained by the amount of structuring behavior the leader exhibited. The positive correlation indicates that higher satisfaction levels are associated with higher levels of IS behavior on the part of the leader.

Manipulation Checks

To determine whether the subjects perceived the manipulated independent variables as the experimenter intended them to be perceived, two ten item scales assessing subject perceptions of RA and IS were included in the questionnaire. Although pilot testing had previously indicated that subjects did perceive the two conditions of RA to be different, results indicated that subjects in the actual experiment did not share the same perception. Collapsing across IS, the condition means for low and high RA were not significantly different, forcing the author to admit that the RA manipulation was a dismal failure. Reliability was good however (.863). These values are found in Table 3.

The IS manipulation did work as intended. The condition means for low and high IS were significantly different, $t(70) = 5.24$, $p < .001$. Subjects could clearly distinguish between the two different types of behavior exhibited by the leader in the experimental situation. This difference was in the predicted direction.

Table 3.--Dependent Variable Means and Standard Deviations for Conditions and Cells.

		Dependent Variable					
		TASKSAT		LEADSAT		PERFORMANCE	
	n	$\bar{X}$	S.D.	$\bar{X}$	S.D.	$\bar{X}$	S.D.
Conditions							
High IS	36	24.86	7.90	27.69	6.09	5.92	2.18
Low Is	36	22.67	10.25	23.52	5.22	5.39	2.03
High RA	36	26.50	8.77	24.81	5.85	5.36	2.06
Low RA	36	21.03	8.81	26.42	6.14	5.94	2.15
Cells							
High RA - High IS (Cell 1)	18	28.17	6.59	28.11	5.38	5.72	2.30
High RA - Low IS (Cell 3)	18	24.83	10.44	21.50	4.28	5.00	1.78
Low RA - High IS (Cell 2)	18	21.56	7.86	27.28	6.87	6.11	2.11
Low RA - Low IS (Cell 4)	18	20.50	9.87	25.56	5.38	5.78	2.24

Analysis of Variance

Presented in Table 4 are the overall F values for the univariate analyses of variance for the three dependent variables. The hypothesized interaction between RA and IS was supported in only one case, that of the dependent variable of LEADSAT, $F(1,68) = 3.49$, $p < .10$. This is an indication that subjects' satisfaction with leader's initiating structure style was dependent upon the amount of RA in the situation. A significant main effect for RA was found only for TASKSAT, $F(1,68) = 6.92$, $p < .05$, signifying that subjects in the high RA condition were more satisfied than in the low RA condition. Condition means and standard deviations can be found in Table 3. Leader IS showed a main effect only for LEADSAT, $F(1,68) = 10.13$, $p < .01$. This finding indicates that subjects in the high IS condition were more satisfied than subjects in the low IS condition.

Planned Comparisons

Condition and cell means and standard deviations are presented in Table 3. A series of planned comparisons was specified (Hypotheses 1a, 1b, 1c, and 1d). To facilitate explanation and understanding of these hypotheses, the reader is referred to Figure 2. Hypothesis 1a stated that subjects in cell 1 (high RA - high IS) would have higher levels of TASKSAT, LEADSAT, and PERFORMANCE than subjects in cell 3 (high RA - low IS). This hypothesis was only partially supported. The only significant difference found was for LEADSAT, $t(36) = 4.08$, $p < .001$. Subjects were more satisfied with the leader when the leader exhibited a good deal of structuring behavior. Although the cell means

Table 4.--Analyses of Variance.

Source		Dependent Variables		
		TASKSAT	LEADSAT	PERFORMANCE
	df	F	F	F
RA	1	6.92**	1.51	1.37
IS	1	1.11	10.13***	1.12
RA x IS Interaction	1	.30	3.48*	.15
Error	68	(77.91)	(30.86)	(4.48)

Note: Mean square error terms are in parentheses.

*p < .10.
**p < .05.
***p < .01.

for TASKSAT and PERFORMANCE were greater in cell 1, as was predicted, the differences were not statistically significant.

Hypothesis 1b stated that subjects in cell 4 (low RA, low IS) would have higher levels of TASKSAT and LEADSAT than subjects in cell 2 (low RA, high IS). This hypothesis was disconfirmed. Differences betweeen cell means for TASKSAT and LEADSAT were in the direction opposite of that predicted. A directional hypothesis for PERFORMANCE was not formulated. The data indicate that PERFORMANCE scores were larger, but not significantly so, in cell 2. This intuitively makes sense if we consider that the instructions were identical in both cells, the only difference between the two cells being that the leader provided some guidance and instructions in cell 2. Although the hypothesis that this would arouse resentment and be associated with lower scores for TASKSAT and LEADSAT was not confirmed, it is possible to speculate

that this structuring behavior by the leader resulted in slightly higher quality lists generated by the subjects.

It was predicted in Hypothesis 1c that TASKSAT and LEADSAT would be higher in cell 1 (high RA, high IS) than in cell 2 (low RA, high IS). This hypothesis was partially supported. Subjects in cell 1 reported significantly higher levels of TASKSAT than subjects in cell 2, $t(36) = 2.73$, $p < .05$. There was not a significant difference between the LEADSAT scores for cells 1 and 2. A directional hypothesis for PERFORMANCE was not advanced. One reason for this was that comparison between these two cells is difficult because the subjects were engaged in two different tasks, writing a report versus compiling a list. There was not a significant difference between the two cells on the PERFORMANCE measure. The nature of the two tasks could explain the significant difference in TASKSAT scores in the following manner. It may be that writing a report is more intrinsically interesting and satisfying than the more pedestrian chore of drawing up a list.

Hypothesis 1d stated the subjects in cell 4 (low RA, low IS) would have higher TASKSAT and LEADSAT scores than subjects in cell 3 (high RA, low IS). This hypothesis was partially supported. As predicted, LEADSAT scores were significantly higher in cell 4 than in cell 3, $t(36) = 2.50$, $p < .05$. Apparently subjects under conditions of low RA were more satisfied with a lack of structuring behavior on the part of the leader than subjects under condition of high RA. Contrary to prediction was the finding that TASKSAT was higher in cell 3 than in cell 4. This difference was not significant however. A possible explanation for this finding was alluded to in the paragraph above. A directional hypothesis for PERFORMANCE was not offered. Although there

was not a significant difference, PERFORMANCE scores were higher in cell 4 than in cell 3, a finding that can be explained by the fact that instructions were simpler and the leader provided guidance and instruction in cell 4.

Because of failure of the RA manipulation, it seemed fruitful to investigate the differences between those who perceived the instructions to be ambiguous with those who felt the instructions were clear. It is possible that the identification of subjects who perceived themselves to be in ambiguous situations could allow a more accurate prediction of the dependent variables of TASKSAT, LEADSAT, and PERFORMANCE. A regression approach was used to explore this possibility.

An examination of the correlations among the various measures indicated that KNOWLEDGE and INTEREST could be employed as covariates. Therefore the procedure that was adopted involved first entering the personal variables (KNOWLEDGE and INTEREST) into the regression equation, then the personality variables, followed by the inclusion of the independent variables of RA and IS. The three dependent variables were regressed on the personal, personality, and independent variables in three separate analyses. The results are presented in Table 5.

For TASKSAT, the combination of KNOWLEDGE and INTEREST reached a marginal level of significance in predicting TASKSAT, $F(1,68) = 2.62$, $p < .10$. INTEREST was significant at the $p < .05$ level. The combination of the three personality variables also reached marginal levels of significance in predicting TASKSAT, $F(1,68) = 2.02$, $p < .10$. Of the three personality variables, only nAch was significant ($p = .10$). The combination of the two independent variables, RA and IS, was statistically significant, $F(1,68) = 2.78$, $p < .05$. Of these two variables,

Table 5.--Regression Analyses.

Dependent Variables	Predictor Variables	Regression Weights	Beta Weights	Multiple R	Overall F	$\underline{P}$	R^2
	Knowledge	-.175	-.092	.110	2.62	.080	
	Interest	3.356	.316**	.266			
	nCl	.099	.061	.269			
TASKSAT	nAch	-.299	-.200*	.314	2.02	.088	.233
	nInd	-.296	-.163	.364			
	Is	-.168	-.145	.402	2.78	.014	
	RA	-.312	-.279**	.483			
	Knowledge	-.073	-.059	.011	.171	.843	
	Interest	.299	.033	.070			
	nCl	-.076	-.071	.076			
LEADSAT	nAch	-.042	-.042	.077	.405	.844	.122
	nInd	-.239	-.208*	.172			
	IS	.212	.280**	.304	1.28	.276	
	RA	-.133	-.181	.350			
	KNOWLEDGE	-.059	-.135	.124	.693	.504	
	INTEREST	-.181	-.074	.140			
	nCl	-.018	-.048	.147			
PERFOR-	nAch	-.009	.027	.148	.358	.875	.042
ANCE	nInd	-.022	-.053	.163			
	IS	-.029	.111	.190	.401	.898	
	RA	-.020	-.079	.205			

*$\underline{p} < .10$.

**$\underline{p} < .05$.

alone was significant ($p < .05$). This latter finding is consistent with the results of the univariate analysis of variance with that indicated RA significantly affected TASKSAT. The significance of nAch and INTEREST in explaining variance in TASKSAT seems consistent with theory and common sense. The personality variable of nAch seems most strongly related to accomplishing work/task goals and would seem to have its strongest effects on satisfaction with the work or task itself. INTEREST was also significant and seems logically tied to TASKSAT insofar as greater amounts of interest in alternative sources of energy would seem to be related to more satisfaction with a task that involved energy matters.

LEADSAT and PERFORMANCE did not reach significance when regressed on the personal, personality, and independent variables. Only two variables reached significance--IS and nInd in explaining variance in LEADSAT. The fact that IS has an effect on LEADSAT makes sense in that we would suspect that a leader behavior variable would have its strongest effect on satisfaction with leader behavior. The finding that nInd was also significant is not surprising in that it is most likely that nInd is more strongly related to interaction with another person (the leader) than to interaction with a task.

Hypotheses 2, 3, and 4 concerned the moderating effects of the three personality variables examined in this study: nInd, nAch, and nCl. These hypotheses were tested by a multiple regression analysis technique in which the personal variables and the personality variables x independent variable interactions were entered into the regression equation first, followed by the independent variables. The occurrence of any significant interactions would have indicated that the personality variables were acting as moderators. Had this occurred, further

analyses would have been conducted. However, no significant interactions were detected, indicating that none of the personality variables were acting as moderators. No further analyses were performed.

DISCUSSION

The basic hypothesis that there would be an interaction between RA and IS was not supported. However the author does not consider this research effort to be a failure because the findings indicate partial support for some of the hypotheses. There was one significant interaction between RA and IS, for the dependent variables of LEADSAT. This interaction, it must be admitted, was marginally significant ($p < .10$). As mentioned previously, this is an indication that subjects' satisfaction with a leader is dependent upon the amount of RA experienced in this situation. This finding is in harmony with a basic tenet of the major contingency theories of leadership, viz., that the effectiveness of a leader is a function of other factors in the environment, one of which is the ambiguity/structure of the task. The data analysis did not indicate the presence of significant interactions between RA and IS for the dependent variables of TASKSAT and PERFORMANCE.

While on a general level the findings did not reveal significant interactions between RA and IS for all three dependent variables, a more specific examination of differences between cells connotes better support for the research hypotheses. Under conditions of high RA, subjects were more satisfied with structuring behavior (high IS) on the part of the leader. This finding is congruent with the hypotheses of House, Filley,

and Gujarati (1971) and House, Filley, and Kerr (1971) as well as the findings of Dessler (1972) and House and Dessler (1974), among others. As noted earlier, it has been thought that the experience of RA causes anxiety and/or is associated with low path-goal instrumentalities. Since one of the primary functions of a leader, according to the path-goal theory, is to enhance path-goal instrumentalities, a leader who does not take steps to reduce situational, task, or role ambiguity will not arouse positive affect toward himself or herself in his subordinates.

Another result that supports the basic research hypotheses is found when one compares subject reactions to different levels of manipulated RA under conditions of high IS. Here it was found that subjects in the high RA condition were more satisfied with the task than subjects in the low RA condition. There are two possible explanations for this finding. One is derived from House and his associates. This explanation states that high IS in the low RA condition arouses resentment in the subjects because structuring behavior is not necessary due to the relative clarity of task/role requirements. As a result, satisfaction with leader and task are lowered. The assumption here is that somehow dissatisfaction with the leader is transferred into dissatisfaction with the task. However, the low correlation between TASKSAT and LEADSAT ($r = .144$) makes this explanation untenable. The other explanation can be drawn from the job enrichment literature. Some researchers, Hackman and Lawler (1971) among them, have stated that "enriched" jobs, characterized by meaningfulness, responsibility, and knowledge of results, have a positive effect on individuals, being associated with higher levels of motivation and satisfaction. The essential point to bear in mind here is that the higher level of TASKSAT in the high RA-high IS

cell may have been due to the nature of the task itself and may have been independent of leader behavior.

Another supportive finding concerns LEADSAT under varying conditions of RA when IS is low. Subjects were more satisfied with low amounts of IS when there was a low amount of RA. These results might best be interpreted by referring once again to the research of House (1971) who postulated that when RA is high, subordinate satisfaction is enhanced by structuring behavior by the leader. This hypothesis is buttressed by the finding that LEADSAT was significantly lower in the high RA-low IS cell than in the low RA-low IS cell. The implication of this finding is that when task requirements are ambiguous, satisfaction with the leader will be higher when the leader does engage in structuring behavior.

The results of this research effort were not all consistent with the a priori hypotheses. Probably the most negative outcome was the finding that RA manipulation did not work. The subjects in the RA conditions did not have significantly different scores. This result was surprising because the RA manipulation did work in the pilot testing phase of this thesis. In part, this could be explained by examining the differences between the data gathering techniques in the two phases of the research. In the pilot testing phase, the RA manipulation check was administered to the subjects at the end of the experiment, a period of 45 minutes. In the research phase the RA manipulation check was administered only 5 minutes after the experiment began. It may be that the five minute time period was not long enough for the subjects in the low RA condition (cells 2 and 4) to realize how simple their task actually was. The novelty of being in the experimental situation may

have led them to report that they were confused and did not understand the situation. The RA manipulation check scale may also have been inadequate to detect real differences between the two conditions. It is interesting to note that there were very significant differences in TASKSAT between the two conditions, a finding that is taken as an indication that the RA manipulation did have an effect.

A second disappointment was the failure to detect a significant interaction between RA and IS for LEADSAT and PERFORMANCE. Some light could be shed on this subject by referring to the research of Schrieshiem and Murphy (1976). These men examined Consideration in addition to IS and the relationship between these two variables on subordinate satisfaction and performance with RA operating as a moderator variable. Their findings suggested to them that Consideration is an important variable and may have a stronger effect than IS. Specifically they stated that a high level of IS was dysfunctional when associated with a low level of Consideration. Cummins (1971) corroborated this finding. Only when a high level of IS was associated with a high level of Consideration did RA moderate the leader behavior--subordinate satisfaction and performance relationship. Valenzi and Dessler (1978) reported similar findings. The implication for this study is that the use of IS alone was not sufficient to have the hypothesized effects on subjects satisfaction with leadership and task performance. The absence of an analog of "Consideration" in this research may be a tenable explanation for the absence of the RA-IS interaction for all three dependent variables.

The non-success in finding significant task performance differences also merits explanation. Schrieshim and Murphy (1976) speculated

that IS was only effective in increasing performance levels of large work groups, rather than increasing the performance levels of individual workers. This explanation is plausible in the context of this experiment if we ponder on the fact that only two subjects were in each experimental session. Schreishiem and Murphy (1976) implied that higher performance levels could be attained through the leader's IS behavior facilitating cooperation and coordination among the interdependent members of the team.

Another explanation for the failure to find performance differences was articulated in Weed, Mitchell, and Moffitt (1976). Weed et al. used four different task types for their research. This research employed two types of tasks, a strategy that necessitated the use of two different scoring procedures. Weed et al. (1976) cautioned readers not to misinterpret task performance scores by saying, "while we would expect performance to vary as a function of task type, it was still difficult to determine how much of the difference in performance was attributable to the different scoring procedures and how much was attributable to task characteristics alone" (p. 62). The same argument can be applied in this case to explain the failure to find task performance differences. Furthermore, it is possible that other factors such as verbal aptitude, writing skill, or intelligence have a greater effect on performance than did the experimental manipulations.

Another limitation that should be pointed out was the failure to find evidence that the personality variables operated as moderators. Zedeck (1971) pointed out the utility of moderator variable research is, "limited by statistical problems, (and) by limited understanding of the statistical operation of moderators" (p. 308). Zedeck (1971)

recommended applying a hypothesized moderator as an independent predictor in a multiple regression equation to avoid small sample size and subgroup proliferation problems. This advice was followed in the analysis of the data. Nevertheless, the hypothesized moderator variables did not operate as "moderators." There are two explanations for this phenomenon, one methodological and the other theoretical. The scale reliabilities of the personality variables were not extremely high (nAch = .76; nInd = .64; nCl = .59). This lack of high reliabilities means that some individuals could be "misclassified," thus reducing the predictive power of the variable of concern. Another methodological problem centers around the concept of power, or more accurately, the lack of power. When scales have low reliability, larger sample sizes are needed to compensate. Such was not the case in this research effort, which had 18 subjects per cell. On a theoretical basis, one could surmise that the hypothesized moderators were not relevant for the task and situation. For example, it is possible to speculate that nAch did not operate as a moderator because the experimental situation did not provide an opportunity for the achievement motive to manifest itself in the subjects. Similarly, nInd may not have had an effect because the experimental situation may not have been a situation where subjects felt that autonomy and control were important and central to their life interests. A real job situation might have elicited different reactions though we can only speculate about their direction and magnitude.

One final limitation must be mentioned. The experimental situation lasted for slightly over an hour. This limits the generalizability of the findings to non-experimental situation such as those in industry, business, and other organizational settings.

SUMMARY AND CONCLUSIONS

This study was an attempt to investigate the moderating effect of RA on the relationship between IS leader behavior and subject satisfaction with task and leader, and task performance. An interaction between RA and IS was hypothesized for all three dependent variables. The data indicated that a significant interaction ($p < .10$) existed only for the dependent variable of LEADSAT. Tentative support for other hypotheses was found in the comparison of cell and condition means. Personality variables did not act as moderators.

Although this study did not strongly support the hypothesized interaction between RA and IS, this should not be taken as just cause for rejection of theoretical underpinnings of this research. The apparent failure of the RA manipulation seriously hindered the probability of finding more supportive results. Future research in this area should focus upon the creation of a satisfactory RA manipulation. Obviously differences in the perceptions of RA are necessary before meaningful comparison or other variables can be made. Perhaps waiting longer to administer the RA manipulation check would have resulted in greater differences between the two RA conditions. A positive feature of this research is that the RA manipulation was based upon RA and task structure descriptions found in the literature. Some other studies have simply used one facet of task structure.

A second suggestion that should guide future research is the inclusion of Consideration in experimental paradigms investigating RA. The original research in leadership at Ohio State assumed that Consideration and IS were independent constructs. Much subsequent research has made the same assumptions. Lowin et al. (1969) reported a correlation of -.21 between Consideration and IS. Apparently a high IS leader may not be able to manifest equally high levels of Consideration (in the eyes of his subordinates). Although Consideration was not a variable of interest in this study, it may be that satisfaction scores were lower because a high IS leader was perceived to be low in Consideration even though Consideration behavior was not "supposed" to be exhibited. Weed et al. (1976) have taken this tack.

Another suggestion concerns the task itself. The experimental session lasted only an hour, making generalizations to on-the-job situations difficult. Future research should use tasks of a longer duration making the situation more realistic to the subjects. A longer time period would also enable subjects to more astutely and reliably perceive leader behaviors.

A final suggestion concerns moderator variables. Future research might be more fruitful if subjects were matched on some relevant variable such as verbal aptitude/writing skill. If this suggestion is followed, it may enable researchers to ascertain the effects of leader behavior on individual performance.

In conclusion, it can be seen that our understanding of the relationship between IS, RA, and the dependent variables is still incomplete. The present study, it must be concluded, did make a modest contribution to our understanding of the relationship between IS and RA.

The analysis of the positive, negative, and inconclusive results of this research did enable the author to provide some suggestions for future research in this arena of inquiry.

APPENDICES

APPENDIX A

INTRODUCTORY INSTRUCTIONS FOR LOW ROLE AMBIGUITY CONDITION

APPENDIX A

INTRODUCTORY INSTRUCTIONS FOR LOW ROLE AMBIGUITY CONDITION

In this experiment we are interested in examining how effectively individuals can integrate information from written sources and communicate that information in a written form in a short period of time.

Before this experiment begins, I would like you to do two things involving the questionnaire. First I want to explain that the written sources of information you will be asked to read will be about alternative sources of energy. I want to find out how familiar you are with the subject before we begin the experiment. So I am asking you to answer a series of questions concerning your knowledge of alternative sources of energy.

Second, I would like you to complete another series of questions. These are on pages 1 and 2 of the questionnaire. Please answer all these items. Do <u>not</u> go on to page 3. Stop when you get to the bottom of page 2.

After you have completed these questions, I can finish reading the instructions and then we can start on the experiment.

As I am sure you are aware, the U.S. has an energy problem. You will be asked to read some articles that deal with alternative sources of energy. Examples of such sources of energy are coal, solar, wind, and nuclear energy. Our nation will have to use these types of energy as the price of oil increases and the supply of oil decreases. These articles are brief and non-technical. Each of these alternative sources of energy has some advantages and disadvantages associated each.

Your task in this experiment is to read some of the articles that will be given to you. By the end of the experimental session you are to draw up a <u>list</u> of the advantages and disadvantages of some of these alternative energy sources. An outline will be provided suggesting how to best approach this task.

Before you start reading the articles you should look over the outline so that you know what you are supposed to do. If you are unsure of what you are supposed to do, <u>ask</u> the experimenter. It is extremely important that you understand what is going on.

After you look over the outline, you should start looking over the articles. After 5 minutes are up you will be asked to fill out page 3 of the questionnaire. Then you can continue to read the articles and start to draw up the list of advantages and disadvantages of some of the energy sources. This part of the experiment will last 40 minutes.

After the 40 minutes are up your work will be collected and you will be asked to fill out the last 2 parts of the questionnaire. Then you will be free to leave.

For the purposes of the experiment, a group leader is going to be assigned. This experiment has been conducted before without a leader. We want to see how having a leader affects your performance.

(name of confederate), is going to be your leader because Dr. Schmitt, who is supervising this research had (name of confederate) in a class and Dr. Schmitt thinks he knows enough about the subject to be an effective leader. (name of confederate)'s role will be to coordinate your efforts and give suggestions. This will be done by passing written messages.

(name of subject) and (name of subject) will be allowed to communicate with each other or the leader only if the leader says you may.

--Are there any questions?
--OK, here are the articles and a copy of the outline. In 5 minutes I will ask you to stop so you can fill out page 3 of the questionnaire.

SUGGESTED WRITING FORMAT/OUTLINE

Factors to be concerned with
- Economic
  - Initial investment?
  - Suitable for industry?
  - Create jobs?
- Environmental
  - Pollution?
  - Effect on landscape?
  - Health and safety?
- Developmental
  - Technologically advanced enough?
  - Possible Governmental subsidy?
- Political
  - Public opposition?
  - Dependence on other power groups or shifting political "winds?"

It is suggested that when you draw up your list, you first list the economic advantages for the first energy source you are examining and then list the economic disadvantages. Then go on to the enviornmental advantages and then the environmental disadvantages. Do the same for

the developmental and political factors/issues. Then go on to the other energy source and do the same.

PLEASE NOTE THAT YOU DO NOT HAVE TO WRITE ABOUT EVERY ONE OF THE FACTORS LISTED ABOVE.

APPENDIX B

INTRODUCTORY INSTRUCTIONS FOR HIGH ROLE AMBIGUITY CONDITION

APPENDIX B

INTRODUCTORY INSTRUCTIONS FOR HIGH ROLE AMBIGUITY CONDITION

Before the experiment begins, I would like you to do two things.

First, I want to explain that the written sources of information you will be asked to read will be about alternative sources of energy. I want to find out how familiar you are with the subject before we begin the experiment. So you will be asked to answer several questions about your knowledge of alternative sources of energy.

Second, I would like you to complete another set of questions. These questions are found on the first and second page of the questionnaire. DO NOT go to page 3.

After these questions have been completed, I can finish reading the instructions and then you can start on the experimental task.

In this experiment we are interested in how effectively individuals can integrate information from written sources and communicate that information in a written form in a short period of time.

As I am sure you are aware, the U.S. is facing some serious energy problems. Our nation will have to turn to alternative sources of energy as our reserves of petroleum dwindle and prices increase. Eventually our economy will have to become more and more dependent upon sources of energy other than petroleum. Keeping these factors in mind, you will be asked to read several articles concerning energy problems and the consequences of and solutions for these problems.

Your task is to write a report addressed to the planners of a "city of the future" which is now in the planning stages. When completed it will have a population of 100,000. This report should be a recommendation for a comprehensive plan designed to provide the city with an adequate amount of energy to function.

The information you will need to write the report is contained in the articles you will be given.

The experimental session is divided into several parts. During the first part, which is 5 minutes long, you will just be given the articles

you are to read. As you read the articles, you should be thinking about how to write the report.

After the 5 minutes are up, you will be asked to answer 10 questions about the task. After you have completed them, you will be allowed to start work on the task, namely, finishing the reading of the articles, and starting the writing of the report. You will have 40 minutes to work on the task.

For the purposes of the experiment, a group leader is going to be assigned. This experiment has been conducted before without a leader. We want to see how having a leader affects your performance.

(confederate), is going to be your leader because Dr. Schmitt had (confederate) in a class and Dr. Schmitt thinks he/she knows enough about the subject to be an effective leader. (confederate)'s role will be to coordinate your efforts and give suggestions. This will be done by passing written messages.

You may begin.

APPENDIX C

RESEARCH QUESTIONNAIRE SCALES

APPENDIX C

RESEARCH QUESTIONNAIRE SCALES[1]

I. Personal Variables

A. Knowledge of Alternative Sources of Energy (KNOWLEDGE)

1. Wind energy
2. Solar energy
3. Tidal energy
4. Nuclear energy
5. Geothermal energy
6. Hydrogen gas energy
7. Biomass conversion
8. Shale oil conversion
9. Coal energy

B. Interest in Alternative Sources of Energy (INTEREST)

1. How interested are you personally in learning about alternative sources of energy?

II. Personality Variables

A. Need for Achievement (nAch)

1. I put in hours of hard work in order to do a job well.

*2. Compared to some people I know, I feel I often waste time and spend it uselessly.

*3. I would describe myself as being lazy.

4. I work for success rather than daydream about it.

---

[1]Asterisked items were reserved scored.

*5. Often I am just not in the mood for work, and then I don't do it.

*6. I do, or did, little preparation for examinations.

7. I do things "today" rather than putting them off to do "tomorrow."

8. I have a reputation for perseverance and hard work.

B. Need for Independence (nInd)

1. To be free to do as I choose in school and at work.

2. To be able to work in school or on the job on my own without direction from other people.

3. To be able to come and go as I please.

*4. To follow a strict code of conduct.

5. To be relatively unbound by social conventions.

6. To be put in a position in life where I do not have to follow other people's orders.

*7. To do what is accepted and proper in my social life.

8. To be able to run my own life without depending upon people who are older and more experienced than I.

C. Need for Clarity (nCl)

1. To know in detail what has to be done when working on a project in class.

2. To know in detail how a job is supposed to be done.

3. To know how well I am doing when I am working on something.

4. A person who leads an even, regular life, in which few surprises or unexpected happenings arise, really has a lot to be grateful for.

*5. Often the most interesting and stimulating people are those who don't mind being different and original.

6. A good job is one where what is to be done and how it is to be done are always clear.

7. An expert who doesn't come up with a definite answer probably doesn't know too much.

8. The sooner we all acquire similar ideals and values the better.

*9. Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality.

10. In the long run it is possible to get more done by tackling small simple problems rather than large and complicated ones.

*11. A good teacher is one who makes you wonder about your way of looking at things.

III. Manipulation Checks

A. Role Ambiguity (RA)

*1. I feel certain of what is required of me to complete the task.

*2. There is one best way to write the final product.

*3. I do not have a clear idea of what I am supposed to do.

4. The task lacks guidelines that would be helpful in directing my writing.

5. I do not know what is expected of me to complete the task.

6. I have to work under vague and unclear instructions.

*7. I have enough information (instructions and articles) to complete the task satisfactorily.

8. It will be hard for me to tell if my writing is acceptable when I finish.

*9. After the instructions had been read, I felt quite sure about what was required of me to complete the task.

*10. I know what steps I will have to take to write the final product.

B. Leader Initiating Structure (IS)

*1. The leader seemed indifferent to task accomplishment.

2. The leader mostly tried his own ideas.

3. The leader talked about how long the report was to be.

*4. The leader did not assign particular tasks to you and the other subordinate.

5. The leader insisted that you use a particular technique to write your particular portion of the report.

*6. The leader did not mention how much reading and writing would be necessary to finish the task.

7. The leader emphasized accomplishing certain things by certain times.

*8. The leader let you do your part of the task the way you wanted.

9. The leader decided in detail what was to be done and how it was to be done.

*10. The leader asked for your suggestions to accomplish the task.

IV. Dependent Variables

A. Satisfaction with Task (TASKSAT)

Fascinating

Routine

Satisfying

Boring

Good

Creative

Pleasant

Useful

Tiresome

Challenging

Frustrating

Simple

Gives sense of accomplishment

B. Satisfaction with Leader (LEADSAT)

Asks my advice

Too "bossy"

Impolite

Influenctial

Doesn't supervise enough

Tells me where I stand

Annoying

Stubborn

Knows job well

Bad

Intelligent

Leaves me on my own

APPENDIX D

RESEARCH QUESTIONNAIRE

APPENDIX D

RESEARCH QUESTIONNAIRE

Below are listed some alternative sources of energy other than petroleum that may be used in the future. Please indicate the amount of knowledge you think you have about each alternative source of energy by circling one of the numbers to the right of the energy source.

1. never heard of it.
2. heard of it once or twice but really know nothing about it.
3. some knowledge of this subject.
4. moderate amount of knowledge, have read something or heard about it more than once.
5. quite a bit of knowledge about this subject, have read or heard about it in several places.

1.	Wind energy	1 2 3 4 5
2.	Solar energy	1 2 3 4 5
3.	Tidal energy	1 2 3 4 5
4.	Nuclear energy	1 2 3 4 5
5.	Geothermal energy	1 2 3 4 5
6.	Hydrogen gas energy	1 2 3 4 5
7.	Biomass conversion	1 2 3 4 5
8.	Shale oil conversion	1 2 3 4 5
9.	Coal energy	1 2 3 4 5

10. How interested are you personally in learning about alternative sources of energy?
    1. not at all interested
    2. slightly interested
    3. moderately interested
    4. quite interested
    5. extremely interested

Below are listed a series of statements representing things that people may consider to be important to their way of life. Please indicate the extent to which each of these statements is important to <u>you</u> by circling one of the numbers to the right of the statement.

1. very unimportant
2. moderately unimportant
3. slightly unimportant
4. slightly important
5. moderately important
6. very important

11. To be free to do as I choose in school and at work. 1 2 3 4 5
12. To be able to work in school or on the job on my own without direction from other people. 1 2 3 4 5
13. To be able to come and go as I please. 1 2 3 4 5
14. To follow a strict code of conduct. 1 2 3 4 5
15. To be relatively unbounded by social conventions. 1 2 3 4 5
16. To be in a position in life where I do not have to follow other people's orders. 1 2 3 4 5
17. To do what is accepted and proper in my social life. 1 2 3 4 5
18. To be able to run my own life without depending upon people who are older and more experienced than I. 1 2 3 4 5
19. To know in detail what has to be done when working on a project in class. 1 2 3 4 5
20. To know in detail how a job is supposed to be done. 1 2 3 4 5
21. To know how well I am doing when I am working on something. 1 2 3 4 5

Below are listed a series of statements representing the way people may feel about themselves and their lives. Please indicate the extent to which each of these statements describes the way <u>you</u> feel by circling one of the numbers to the right of the statement.

1. strongly disagree
2. moderately disagree
3. slightly disagree
4. slightly agree
5. moderately agree
6. strongly agree

22. I put in hours of hard work in order to do a job well. 1 2 3 4 5
23. Compared to some people I know, I feel I often waste time and spent it uselessly. 1 2 3 4 5
24. I would describe myself as being lazy. 1 2 3 4 5
25. I work for success rather than daydream about it. 1 2 3 4 5
26. Often I am just not in the mood for work, and then I don't do it. 1 2 3 4 5
27. I do, or did, little preparation for examinations. 1 2 3 4 5
28. I do things "today" rather than putting them off to to "tomorrow." 1 2 3 4 5
29. I have a reputation for perseverence and hard work. 1 2 3 4 5

1. strongly disagree
2. moderately disagree
3. slightly disagree
4. slightly agree
5. moderately agree
6. strongly agree

30. A person who leads an even, regular life, in which few surprises or unexpected happenings arise, really has a lot to be grateful for. 1 2 3 4 5

31. Often the most interesting and stimulating people are those who don't mind being different and original. 1 2 3 4 5

32. A good job is one where what is to be done and how it is to be done are always clear. 1 2 3 4 5

33. An expert who doesn't come up with a definite answer probably doesn't know too much. 1 2 3 4 5

34. The sooner we all acquire similar ideals and values the better. 1 2 3 4 5

35. Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality. 1 2 3 4 5

36. In the long run it is possible to get more done by tackling small simple problems rather than large and complicated ones. 1 2 3 4 5

37. A good teacher is one who makes you wonder about your way of looking at things. 1 2 3 4 5

Below are listed a series of statements about the experimental task and your role in the task. Please indicate the extent to which you agree or disagree with each of these statements by circling one of the numbers to the right of the statement.

1. strongly disagree
2. moderately disagree
3. slightly disagree
4. slightly agree
5. moderately agree
6. strongly agree

38. I feel certain of what is required of me to complete the task. 1 2 3 4 5

39. There is one best way to write the final product. 1 2 3 4 5

40. I do not have a clear idea of what I am supposed to do. 1 2 3 4 5

41. The task lacks guidelines that would be helpful in directing my writing. 1 2 3 4 5

42. I do not know what is expected of me to complete the task. 1 2 3 4 5

43. I have to work under vague and unclear instructions. 1 2 3 4 5

44. I have enough information (instructions and articles) to complete the task satisfactorily. 1 2 3 4 5

45. It will be hard for me to tell if my writing is acceptable when I finish. 1 2 3 4 5

1. strongly disagree
2. moderately disagree
3. slightly disagree
4. slightly agree
5. moderately agree
6. strongly agree

46. After the instructions had been read, I felt quite sure about what was required of me to complete the task. 1 2 3 4 5

47. I know what steps I will have to take to write the final product. 1 2 3 4 5

Below are listed a series of statements describing the behavior of the person who was the leader in the experiment. Please indicate the extent to which you agree or disagree with the descriptive statements by circling one of the numbers to the right of the statement.

1. strongly disagree
2. moderately disagree
3. slightly disagree
4. slightly agree
5. moderately agree
6. strongly agree

48. The leader seemed indifferent to task accomplishment. 1 2 3 4 5

49. The leader mostly tried his own ideas. 1 2 3 4 5

50. The leader talked about how long the report was to be. 1 2 3 4 5

51. The leader did not assign particular tasks to you and the other subordinate. 1 2 3 4 5

52. The leader insisted that you used a particular technique to write your particular portion of the report. 1 2 3 4 5

53. The leader did not mention how much reading and writing would be necessary to finish the task. 1 2 3 4 5

54. The leader emphasized accomplishing certain things by certain times. 1 2 3 4 5

55. The leader let you do your part of the task the way you wanted. 1 2 3 4 5

56. The leader decided in detail what was to be done and how it was to be done. 1 2 3 4 5

57. The leader asked for your suggestions to accomplish the task. 1 2 3 4 5

Below are two lists of words which may or may not be descriptive of the experimental task and the leader you worked with. Please put a "Y" beside a word if it is descriptive of the experimental task or of your leader in the experiment. Put an "N" next to a word if it is not descriptive. Put a "?" next to a word if you cannot decide if the word is descriptive or not.

TASK	LEADER IN EXPERIMENT
___Fascinating	___Asks my advice
___Routine	___Too "bossy"
___Satisfying	___Impolite
___Boring	___Influential
___Good	___Doesn't supervise enough
___Creative	___Tells me where I stand
___Pleasant	___Annoying
___Useful	___Stubborn
___Tiresome	___Knows job well
___Challenging	___Bad
___Frustrating	___Intelligent
___Simple	___Leaves me on my own
___Gives sense of accomplishment	___Helps accomplish task

APPENDIX E

LEADER INITIATING STRUCTURE MESSAGES

APPENDIX E

LEADER INITIATING STRUCTURE MESSAGES

Cell 1: High RA - High IS

Message #1

The instructions were not very clear were they? From what I understand we are supposed to read all the articles we have been given and then write a report about an energy plan for some city. Why don't you both skim the articles. That is what I am going to do. Once we see what we have we can do something. I think we should do different areas.

Message #2

I just skimmed two of the articles, the ones about Israel and Sweden. (name of subject), why don't you concentrate on those two articles. The Israel one is mostly about home heating I think. The Sweden one is about industry and mass transit. That stuff is good if we are doing a report for the city planners. I'll read about solar power.

Message #3

(name of subject), I have been skimming the articles we have been given. I assigned the ones about Israel and Sweden to (name of subject). Why don't you do the article about wind. The instructions said we are doing a report for a city. See if the article tells if wind can help provide energy for a city. I'll read about solar power.

Message #4

The instructions said we were supposed to write a report for some city planners. If the report is about energy for a city I think there are several things we should be concerned about.

1) heating homes and buildings
2) power for industry

I read an article for the paper I did last term which said that you can look at energy use at 3 levels.

1) single buildings
2) neighborhoods
3) whole cities

I just glanced at the articles I assigned to you but I think you should look at what you are reading at those levels. How can solar energy or wind energy help single buildings, or how bunches of buildings, or a while city? For example, this article I read said that windmills would be better for a neighborhood rather than for a whole city.

Message #5

5 minutes left. Better start finishing up.

Cell 2: Low RA - High IS

Message #1

The instructions seemed pretty clear. We are supposed to draw up a list of the advantages and disadvantages of these alternative energy sources. Since we do not have a bunch of time, I think we should each take a couple of articles and do a real good job on them rather than try to do all the articles. Why don't you skim all the articles while I do the same. Then I will assign articles to each of you.

Message #2

(name of subject) take the articles on solar energy and coal energy. (name of subject), take the articles on nuclear energy and wind power. I'll do timber and geothermal energy. The articles do not look very technical. I think you should read all the way through an article first and then go back and make up your list. Following the outline will help a lot.

Message #3

You should have your first article done by (20 minutes before end of experiment). That will leave 20 minutes for the second article. Try to cover most of the points in the outline.

Message #4

Only 5 minutes to go. Better start finishing up.

Cell 3: High RA - Low IS

Message #1

I didn't understand the instructions very well. This is what I am going to do. I am going to read the article about wind energy. I guess you can work on what you want.

Message #2

The experimenter said we had 40 minutes to write the report. That means we have ½ hour left. My report is going to be pretty short, probably only one page. The article about wind is good.

Message #3

We have 20 minutes left. I am more or less rewriting what this article is saying. I don't see how we can write a report to a city based on these articles.

Message #4

5 minutes to go. Better start finishing up.

Cell 4: Low RA - Low IS

Message #1

The instructions seem pretty clear. Pick out a couple of articles that interest you and write up a list of the advantages and disadvantages. The things we should be concerned about seem to be pretty well covered in the outline.

Message #2

The report I had to do last term did not include anything about using timber and wood for energy. So I am going to do the article about timber. I think I am going to do the article about coal too.

Message #3

I just finished the timber article. In order to get at least 2 articles done I think you might want to start on a second article if you already have not done so. We have 15 minutes to go.

Message #4

Only 5 minutes to go. Better start finishing up.

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