LEADER SOCIAL POWER AND SUBORDINATE CREATIVITY

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Table Page

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Hoping to survive rapidly shifting markets, changing government regulations, and fierce domestic and international competition, organizations are beginning to realize that innovation may be their most valuable output variable (Staw, 1984). As a result of this realization, the study of innovation within the organizational setting has received considerable attention in both the scientific and popular literatures. Within these literatures numerous variables have been cited as contributing to organizational innovation (e.g., contextual influences and group processes). However, theory and empirical research have left relatively unexplored the relationship between two potential determinants of organizational innovation. These determinants are subordinate creativity and the use of social power by leaders to promote subordinate creative behavior. The focus of the present study was to empirically explore subordinate creativity and the relationship leader social power has with it. A model of the leader social power-subordinate creativity relationships was developed and evaluated.

Subordinate creativity has been recognized for its significant contributions to organizational rejuvenation, effectiveness, and survival (Basu & Green, 1996; Woodman, Sawyer, & Griffin, 1993). This is partly because subordinate creativity is an identified subunit of innovation (Amabile, 1988; Amabile, Conti, Coon, Lazenby, Herron, 1996; Woodman et al., 1993). Innovation entails the introduction or application of ideas, processes, products or procedures new to the relevant unit of adoption, which

are designed to significantly benefit the individual, group, organization, or wider society (Farr, 1990). However, "all innovation begins with creative ideas" (Amabile et al., 1996, p. 1154). That is, creativity entails new ideas that in turn result in innovations. But, how does one identify a new, evolving idea, procedure or process as creative? What separates what is creative from what is simply extreme or unusual? The answers to these questions can be found in the creativity literature.

Some would suggest that creativity is a mysterious phenomenon which defies systematic analysis (Isaksen, 1987). This is because creativity, like many similar concepts (e.g., intelligence, emotion, or self), is organized around a socially agreed upon prototype (Dowd, 1989; Woodman, et al., 1993; Woodman & Schoenfeldt, 1989). Creativity cannot be studied by isolating individuals and their works from the social milieu in which their actions are carried out. Relevant social groups evaluate and confirm the novelty and usefulness of products deemed "creative." Creative acts or behaviors may share "family resemblance" without meeting the necessary and sufficient conditions of well-defined categories (Guastello, Bzdawka, Guastello, & Rieke, 1992). Therefore, social agreement is one of the constitutive aspects of creativity. Without it, it would be impossible to differentiate what is creative from what is simply statistically rare or bizarre (Csikszentmihalyi, 1988). Creativity may then be identified, operationalized, and studied according to agreed upon criteria within a given social context. Placed within the organizational setting, creativity is defined here as the creation of a valuable, useful, new product, service, idea, procedure, or process by individuals, working alone or together in small groups, in a complex social setting (Amabile, 1988; Woodman et al., 1993). (Table 1 provides a listing of definitions for

key terms used throughout this document. All Tables appear in Appendix A.) This definition of creativity has been selected because it reflects the conceptualization of creativity accepted by several prominent creativity researchers (e.g., Amabile, 1988, Woodman et al., 1993).

It should be emphasized that it is the individual, working alone or with others in a small group, who produces the valuable, useful, new ideas that are identified as creative. Also, it is not possible to isolate the individual from the social environmental factors within the organization. Within the work environment subordinate attitudes, motivation, and access to technical support are subject to social influences (Amabile & Gryskiewicz, 1987) that contribute to an environment conducive or inhibitive to subordinate creativity. Therefore, it is proposed that social factors play important roles in directing subordinate creativity.

However, limited theory and empirical research directly explore social factors important to individual subordinate creativity. Instead, what does exist is a) a long stream of research concerned with intrapersonal aspects of individual creativity, and b) a limited research base that looks at contextual influences on creativity within the workplace. Many intrapersonal aspects of individual creativity have been heavily researched. These areas of research have included personality, intelligence, cognitive style, and cognitive abilities. These areas of research have been fruitful and provide insight into several factors contributing to individual creativity. For example, useful findings have developed within the intelligence and personality literatures.

First, a prominent debate within the creativity-intelligence literature has led to the development of a threshold theory of intelligence and creativity. This debate concerns

whether creativity and intelligence are basically the same thing or whether creativity is a component of intelligence. Both arguments suggest that the more intelligent the individual, the higher the probability creativity will occur (Haensly & Reynolds, 1989). Empirical evidence suggests that creativity is a component of intelligence. Intelligence appears to be a necessary, but insufficient contributing factor (Amabile, 1983). A number of studies have shown a non-homoscedasticity of variance in the bivariate distribution of IQ and creativity scores (Getzels & Jackson, 1962; Schubert, 1973). At low levels of intelligence, there appears to be an almost uniform low level of creativity. At higher levels of intelligence, more creativity is found. However, several studies have indicated that highly creative individuals in a particular field do not have IQs higher than the IQs of matched individuals in their field who are not judged to be creative.

For example Harmon (1963, as cited in Hayes, 1989) rated 504 physical and biological scientists for research productivity and found no relation between creativity and either IQ or school grades. Therefore, some minimum level of intelligence is presumed to be required for creative performance because intelligence is, presumably, directly related to the acquisition of domain-relevant skills and the application of creative heuristics. This finding has led to the "threshold theory" of intelligence and creativity which proposes that a person's IQ must be above some threshold value if that person is to be successful in creative activities. IQ differences above the threshold level, however, have not been shown to make a significant difference in creativity (Amabile, 1983).

Also, creativity as a construct has challenged personality theory. The search for personality characteristics associated with creativity has been a major emphasis of

creativity research over the decades (Barron & Harrington, 1981). A long-standing approach to finding "the creative personality" has involved cataloging personality correlates of creative behavior. Seeking data predictive of future creative behavior, investigators have researched the similarities and differences in individual creativity across broad fields of endeavor (e.g., art and science) and across narrowly defined disciplines [e.g., mathematics and architecture (Barron & Harrington, 1981; Woodman & Schoenfeldt, 1989)]. As a result, empirical evidence suggests that a reasonably stable core of personality characteristics may exist. These characteristics include "high valuation of esthetic qualities in experience, broad interests, attraction to complexity, high energy, independence of judgement, intuition, self-confidence, ability to resolve antinomies or to accommodate apparently opposite or conflicting traits in one's self-concept, and a firm sense of self as 'creative'" (Barron & Harrington, 1981, p. 453). However, "despite such convergence in the research literature, the generalizability of any specific constellation of traits across fields of endeavor remains highly problematic" (Woodman & Schoenfeldt, 1989, p. 78). This has led to trait-specific research (e.g., Eysenck, 1983) which focuses more narrowly on work concerning specific personality dimensions believed to be related to creativity [e.g., traits of persistence, curiosity and internal locus of control (Amabile, 1988; Amabile, 1983; Woodman et al., 1993)].

Admittedly, these two examples of research provide only a small sampling of what can be gleamed from the diverse, yet extensive, literatures dedicated to intrapersonal constructs related to individual creativity. However, a more extensive review would only reveal that the bulk of past theory and research have been dedicated to studying constructs that are static and cannot be easily changed by outside influences.

Thereby, the theory and research dedicated to factors such as intelligence or cognitive ability do not shed light on how creativity is affected by interpersonal relationships—the focus of the present study. Rather, previous research tends to be more telling of what type of employee to hire than it is suggestive of how to support an employee to be creative once s/he is hired. For this reason, the following discussion presents a brief overview of the limited research dedicated to creativity within the work place. The review is not intended to be exhaustive; it is only illustrative of a selection of potentially important variables and relationships identified in the creativity literature. The topics reviewed include personal factors (e.g., domain relevant knowledge, and motivation) and contextual influences (e.g., freedom of choice, task constraints, and time pressures).

Subordinate Creativity: A Brief Overview of the Literature

Relevant Knowledge

> "Innovation is little more than a new combination of those images which have been previously gathered and deposited in the memory. Nothing can be made of nothing. He who has laid up no material can produce no combination."

This quote by Sir Joshua Reynolds (1732-1792, as cited in Woodman et al., 1993, p. 103), suggests that certain knowledge or skills relevant to the area in which one is working are necessary for innovation. That is, one cannot combine mental elements in a new way if the elements are not known to him or her in the first place (Martindale, 1989). This concept of relevant knowledge is also applicable to creativity. Factual knowledge, technical skills and special talents (acquired through education, training, and from colleagues) provide individuals with information from which new ideas evolve.

Without such knowledge, the individual's potential for being creative diminishes greatly. As Amabile (1983, p. 70) points out, "it is only possible to be creative in nuclear physics if one knows something (and probably a great deal) about nuclear physics." However, as with other factors related to creativity, domain relevant knowledge is necessary but is not a sufficient condition for creative achievement (Amabile, 1988; Martindale, 1989; Woodman et al., 1993).

Motivation

According to Kanter (1990) motivation is anything that provides direction, intensity, and persistence to behavior. Therefore, an individual's motivational state is likely to direct the intensity and persistence of creative behavior. In recent years more researchers have begun to consider the role of motivation and have established an important link between it and creative performance. One link, identified by Amabile (1983) as the intrinsic motivation principle of creativity, suggests that an individual who is primarily intrinsically motivated (i.e., engages in the act primarily for the interest, enjoyment, satisfaction, and challenge of the work itself) is more likely to be creative than a person who is primarily motivated by external rewards or pressures. Amabile and her colleagues (e.g., Amabile, 1983,1988; Amabile & Gryskiewicz, 1987) have presented evidence supporting the intrinsic motivation principle of creativity. In contrast, additional empirical evidence suggests that for individuals who are either not motivated, or are extrinsically motivated, salient extrinsic rewards may act to direct additional effort towards creativity, thereby, potentially increasing creativity over baseline intrinsic-motivation levels (Amabile & Gryskiewicz, 1987; Amabile, Hennessey, Grossman, 1986; Crano, Gorenflo, & Shackelford, 1988). However, much

of this research has been conducted within the lab setting and does not provide longitudinal evidence that extrinsic motivators will facilitate creativity in the long-run. The gain in creativity from rewards given to non-motivated, or extrinsically motivated individuals, may only be short term (Amabile, 1987; E. L. Deci, personal communication, September, 1996). In the end creativity will be contingent upon the presence of external incentives by which to encourage creative attempts.

Contextual Factors

In addition to issues surrounding relevant knowledge and motivation, research suggests that creativity is influenced by contextual factors. These contextual influences include factors such as freedom of choice, task constraints, and time pressures. Taken together, these are elements found within the environment in which creative acts take place, and as such have the potential to contribute to individual differences in creative performance. However, despite the fact that contextual factors have been implicit in much of the creativity theory and research (e.g., Amabile, 1983; Amabile & Gryskiewicz, 1987; Sternberg & Lubart, 1991), they have not been explicit topics in a large number of studies.

Freedom of choice, task constraints, and time pressures. Freedom of choice, in regards to how to perform the task, is often cited as a positive antecedent of creativity (Amabile, 1983; Peters & Waterman, 1982; West, 1987). Several researchers have concluded that creativity is fostered when individuals and work teams have considerable freedom in the day-to-day conduct of their work and have a sense of ownership and control over their own work and ideas (King & West, 1985, as cited in Amabile, et al., 1996; Pelz & Andrews, 1966; West 1986, as cited in Amabile, et al., 1996). Research

has revealed that individuals produce more creative work when they perceive themselves to have a choice in how to go about accomplishing assigned tasks (Amabile & Gitomer, 1984).

Task constraints, on the other hand, frequently interfere with this freedom. Task constraints consist primarily of a lack of freedom in deciding what to do or how to accomplish the task. They contribute to an individual experiencing a lacking sense of control over one's own work and ideas (Amabile, 1988). As a result, task constraints are likely to have disparate effects on creativity (Amabile, 1983). For example, according to Amabile (1988), a content analysis of an interview study (Amabile & Gryskiewicz, 1987) revealed 48% of the 120 research and development (R&D) scientists interviewed identified task constraints at least once during the interview as inhibiting creativity.

Additionally, empirical evidence suggests that externally imposed time pressures are detrimental to creativity. Time pressure frequently refers to insufficient time to think creatively about a problem. Time pressures may result from too great a workload within an unrealistic time frame, or from a high frequency of "fire-fighting" (Amabile, 1988; Farr & Ford, 1990). Such pressures prohibit long-term thinking needed for creativity. Additionally, they may produce routinized, well-rehearsed behavior patterns, thereby interfering with tasks requiring creative responses (Friend, 1982). On the other hand, a complete lack of time pressure, or no sense of urgency, may lead the creative subordinate to feel his or her project is unimportant. The complete freedom to choose how to spend one's time may not be as effective as moderate freedom involving supporting consultations with supervisors or managers (Pelz & Andrews, 1966).

The Gap

As suggested above, the majority of psychological research on creativity has focused on the importance of intrapersonal determinants of creativity (Woodman & Schoenfeldt, 1990). This includes much consideration of the creative person. However, it seems that we know more about what personality traits some creative people have than what social environmental factors promote individuals to actually perform creatively. The lack of attention paid to social environmental factors is surprising given that individual creativity depends on the social context in at least two ways. First, it is the consensus of a critical segment of society that defines what behaviors are creative. Second, the realization of creative ideas relies upon recognition from within the social environment. A creative act needs to attract the attention of some relevant social group. Yet, the contribution of the social environment reaches beyond the definition and recognition of what is regarded creative. Social surroundings must support and facilitate the individual to fulfill his or her creative potential (Csikszentmihalyi, 1988).

This last statement leads one to consider what factors are responsible for establishing the social surroundings supportive of individual creativity. Within the work setting one potentially significant set of factors is a subordinate's leader and the type of social influence s/he utilizes to bring about creativity. A number of authors have suggested that leadership is important to creativity (Amabile & Gryskiewicz, 1989; Bass, 1990; Basu & Green, 1996; Kolb, 1992; Staw, 1984). However, the majority of the organizational research has, instead, focused on the relationship between leadership and innovation (Basu & Green, 1996). Generally the focus has been on determining what leadership styles or behaviors appear to be important in influencing work-team

innovation (Domer, 1974; Lawental, 1987; Pratt & Jiambalvo, 1981). For example, Kanter (1983) and Peters and Waterman (1982) suggest innovation is most likely to occur where leadership styles are participative and collaborative. Nystrom (1979) and Coopey (1987, as cited in West, 1990) argue that democratic and collaborative leadership styles facilitate innovation.

Resulting from the leadership-innovation research is the growing evidence that leadership is "critical in creating a cultural context that fosters innovation, and in establishing organizational strategies, structure, and systems that facilitate innovation, " (Van de Ven, 1986). However, what is it that enables leadership--an interaction between members of a group in which one group member modifies the motivation or competencies of others in the group--to establish organizational strategies or structures that facilitate innovation and creativity? The answer is the type of social power a leader brings to bear such that subordinate creativity is promoted.

Scholars have emphasized the need to conceptualize leadership as a power phenomenon (Hinkin & Schriesheim, 1989). Typically viewed as the degree of control a person or group has over other persons, power gives a leader the capacity to produce effects on or influence others (French & Raven, 1959). Thus, power viewed in terms of relationships (Griffin, 1983), may manifest itself in a number of ways.

Briefly, the concept of power is as old and universal as any social theory can boast (Griffin, 1983). Social psychologists and sociologist consider power to be central to their disciplines. As a result, several classifications and theories of power have been set forth (e.g., Falbo, 1977; Howard, Blumstein, & Schwartz, 1986; Kipnis, Schmidt & Wilkinson, 1980; Yukl & Falbe, 1990). However, the five base typology identified by

French and Raven (1959) is the most robust both in terms of popular application and its ability to subsume other typologies (Cobb, 1980). The main purpose of French and Raven (1959) was to identify the major types of social power and to define them systematically so that comparisons of the changes and effects they produce can be made. According to their theory, the five bases of social power are: (1) expert power--based on the target's perception that the powerholder has some special knowledge or expertise; (2) legitimate power--based on the target's perception that the powerholder has a legitimate right to prescribe behavior for him or her; (3) referent power--based on the target's identification with the powerholder; (4) reward power--based on the target's perception that the powerholder has the ability to reward him or her; and (5) coercive power--based on the target's perception that the powerholder has the ability to punish him or her (French & Raven, 1959).

According to social power theory, the leader and the subordinate share an interpersonal relationship in which the leader is an agent of change, able to affect the attitudes, behavior, and performance of the subordinate in order to meet individual, group, and/or organizational goals (Bass, 1990). The leader is capable of directing such change because s/he possesses and uses identifiable types of power (i.e., expert, legitimate, referent, reward, and coercive) which influence the social environment surrounding the subordinate (Yukl, 1994). It is here argued that it is through such manifestations the leader's power provides him/her a degree of control over social environmental factors potentially important to creativity (e.g., the factors discussed in the brief overview presented above).

However, because only a few researchers (e.g., Basu & Green, 1996) have presented theoretical frameworks for understanding how leader behaviors derived from leader power may affect subordinate creativity, research has left unanswered several important questions. These questions include: (a) Is the creative performance of individuals within the work environment a function of salient leader influences? and, (b) If so, how does this use of leader power enhance or constrain subordinate creativity?

In order to answer these questions it is necessary to fill the gap generated by the creativity literature's oversight of potentially significant relationships between leader power utilization and subordinate creativity. Given this gap, three primary reasons support the need for a systematic understanding of the relationship between the type of power leaders use to promote creativity and subordinate creativity. First, as has already been emphasized, there is little formal theory or literature integrating research on leader power usage and subordinate creativity. Past research, for the most part, has focused on group/team issues and organizational creativity. At the organizational level seldom have individual perspectives been integrated into questions of organizational innovation (Staw, 1984) or creativity. This has left unexplored (a) the creative behaviors of individuals who contribute to group or organizational creativity; and (b) any meaningful consideration of the social context in which creative work is performed (Griffin, 1983). In doing this, a potentially powerful source of social information, i.e., the supervisor or leader, has been neglected by theorists, researchers and practitioners (Griffin, 1983). Thus, despite the fact that the use of power has been identified as a factor which can retard or facilitate subordinate work performance (Fiorelli, 1988), little relevant theory or

empirical research exists to identify the effects the type of power leaders use have on subordinate creativity.

Second, it has been suggested that creativity is normally distributed throughout the population (Amabile, 1983). Creative expression and performance within the work setting is manifested by almost everyone, given appropriate environmental conditions (Abbey & Dickson, 1983; Amabile, 1983, 1988). Because little can be done about innate abilities and personality characteristics, social variables represent one of the most promising avenues for influencing creative behavior. Subordinate creativity does not take place in a vacuum. The creative subordinate must contend with social influences that control or impact the social environment contributing to organizational strategy, structure, and systems that facilitate creativity. For example, a leader wanting to foster subordinate creativity can use her/his reward power to delegate rewards to creative subordinates. In doing so the leader controls the presence of rewards originating from the work environment and potentially influences the subordinates' motivation to be creative (Amabile, 1988; Amabile & Gryskiewicz, 1987). Should the subordinate become extrinsically motivated her/his creativity may become contingent upon receiving the leader's rewards (Amabile, 1988). Thus, social environments influencing creativity can be changed and can have immediately observable effects on performance (Amabile, 1983, 1985, 1988); therefore, an understanding of how leader power utilization impacts subordinate creativity is needed.

Last, as a result of rapid advances, technological innovation has become a key concept in organizational competition and survival (Abbey & Dickson, 1983). As a subset of organizational innovation, individual creativity plays a significant role in the

generation of new and useful ideas to be implemented by the organization. How leaders use their different types of power becomes important because power is concentrated in the hands of a few individuals. These leaders are responsible for stimulating subordinate creativity necessary for organizational survival. Thus, the study of how the types of power a leader employs to influence subordinate creativity promises strategies for meeting the challenges of bringing about economic and social advancement (Abbey & Dickson, 1983).

Bridging the Gap

The Study

The present research proposed a field-study of leader power bases and subordinate creativity within the work setting. This study was designed to provide an understanding of the relationships between the types of power a leader employs to promote creativity, the contextual factors which impact subordinate creativity, and the resulting subordinate creativity. The study did not encompass personality factors contributing to subordinate creativity. As mentioned earlier, personality traits associated with individual creativity have been a major emphasis of past creativity research (Barron & Harrington, 1981). However, despite evidence that a reasonably stable core of personality characteristics may exist, the inability to generalize any specific constellation of traits across fields of endeavor reduces the value of including personality factors within the current study. Thus, the present research evaluated contextual factors contributing to subordinate creativity within the work environment.

This study also incorporated two personal factors, subordinate attitudes towards performing creativity at work and subordinate motivation to be creative at work. With

regard to subordinate motivation, the present study broke away from the traditional intrinsic motivation theory of creativity (e.g., Amabile, 1983) by incorporating self-determination theory (Deci & Ryan, 1985) to describe subordinate motivation to be creative at work. Self-determination theory (whose elements are defined and discussed later) espouses that not all extrinsic motivators work in opposition to intrinsic motivation. Rather, under the right circumstances, some extrinsic motivators can influence behavior in a similar manner as intrinsic motivators. Thus, the need to differentiate between the types of extrinsic motivators presents itself. In turn, the utilization of self-determined theory allows a more detailed perspective of how the leader social powers relate to subordinate motivation to be developed.

It should be noted that this study sought an understanding of both positive and negative influences on subordinate creativity. In most previous research on the work environment for creativity, there has been a bias toward creativity supports—work environment factors that appear to enhance creativity. There is comparatively little research evidence on creativity impediments—work environment factors that can undermine creativity (Amabile et al., 1996). Therefore, an effort was made to include both positive and negative variables thought to be important to subordinate creativity. In doing so, this study addressed: (a) how the types of power a leader uses enhance or constrain subordinate creativity; (b) whether the different power bases used to promote creative behavior independently influence subordinate creativity; and (c) whether identifiable variables (e.g., a subordinate's motivational orientation) mediate between each power base utilized and subordinate creativity. Through consideration of these

issues it was hoped that insights into the leader power-subordinate creativity relationship would be found.

The Model

The model presented here introduces the relationships leader social power is proposed to have with subordinate creativity. In this model, it is suggested that subordinate creativity is a complex product of subordinate behavior within the work environment. The work environment is characterized in terms of the contextual and leader social influences that either facilitate or inhibit subordinate creative accomplishment. This framework combines important elements of social psychology's (e.g., Amabile 1993) explanation of creativity.

Figure 1 provides a conceptual overlay of the present study's perspective on creativity within a professional leader-subordinate relationship (see Appendix B for all Figures). The creative behavior of the subordinate is a complex person-situation interaction influenced by the salient social relationship with his or her supervisor. In sum subordinate creativity is a function of personal factors (e.g., motivation and attitudes), contextual influences (e.g., technical support) and social influences (leader social power). The arrows in Figure 1 represent an attempt to diagram the interactions of leader social power influences and subordinate creativity, as well as acknowledge cross influences among leader social powers.

An important feature of the presented model of subordinate creativity is that it provides a focused look at how leader social powers (i.e. expert, legitimate, referent, reward, and coercive) influence salient mediating factors (i.e., technical support, subordinate motivation to be creative, and subordinate attitudes towards being creative).

It also introduces one moderating variable, leader autonomy-support, which is proposed to moderate the relationship between leader legitimate power and subordinate motivation and the relationship between leader referent power and subordinate motivation to be creative. It is argued that these relationships are particularly important in understanding social relationship characteristics that both enhance or inhibit subordinate creativity. These factors have been identified and selected as mediators, or moderators, for two reasons. First, in order to target the social influence relationship between leader power used to promote subordinate creativity and actual subordinate creativity, these factors propose to be the most promising. Other variables, such as personality or intelligence, are static intrapersonal variables not easily changed by social influence. Second, theory and empirical evidence support the depicted linkages.

In the sections that follow, the rationale and evidence for these linkages will be established and explored. The model shown in Figure 1 will be used to organize the diverse literature and streams of research that focus on (a) leader social power, (b) technical support issues, (c) motivation, (d) autonomy-support, (e) attitudes, and (f) creativity. In none of these areas is the literature reviewed intended to be exhaustive; it is only illustrative of potentially important variables and relationships.

CHAPTER II

FIVE BASES OF SOCIAL POWER AND SUBORDINATE CREATIVITY

Utilizing French and Raven's (1959) five-fold model of social power, the presented model of subordinate creativity is a step towards understanding a potentially significant set of social variables that may influence subordinate creativity within the work environment. The five power bases composing this model of social power (expert

power, legitimate power, referent power, reward power, and coercive power) represent qualitatively different forms of social power (French & Raven, 1959; Hinkin & Schreishiem, 1989). Because most supervisors are theoretically expected to possess at least a small degree of each power base (Bass, 1990) empirical work has demonstrated the necessity of distinguishing between these five types of power. In doing so this research has accounted for different effects found in social influence studies (Cobb, 1980; French & Raven, 1959; Podsakoff & Schriesheim, 1985).

For example, Hinkin and Schriesheim (1989) sought to evaluate the relationships among the five power bases and employee satisfaction and organizational commitment. Across three diverse samples (part-time employed upper-level undergraduate students, full-time employees of a psychiatric hospital, and full-time employees and part-time MBA students), partial correlation analyses demonstrated the independent effects of each power base on satisfaction and organizational commitment. Extending upon the findings of this work, it was proposed by the present study that each power base has the potential to impact subordinate creativity. Subordinate creativity is a social phenomenon subject to numerous influences. Each power base represents a relatively unique form of social influence, thereby possessing the potential to influence different social and environmental factors leading to subordinate creativity.

The following presents a detailed discussion of these relationships. In step, each power base is more clearly defined; mediating and moderating factors are identified and discussed; and finally, a series of hypotheses propose the relationship(s) each power base has with subordinate creativity.

Expert Power and Subordinate Creativity

Expert power is defined as the target person's perception that the powerholder has some special knowledge or skill (French & Raven, 1959). The amount of expert power held by a leader is not dictated by the organization (Ivancevich & Donnelly, 1970). Rather, expertise is a source of power only if others are dependent upon the expert for advice and technical support. The more important the problem for the target, the greater the power of the agent possessing the necessary expertise to solve the problem. Therefore, it is not enough for the leader to possess expertise. The subordinate must recognize this expertise and perceive the leader to be a reliable source of information, advice, and technical skill. The leader's specialized knowledge and technical skill will remain a source of power only as long as there is continued subordinate dependence upon them. Additionally, because it is a power associated with the personal abilities of the leader, expert power is probably not experienced by subordinates as pressure to comply or as limitations on personal freedom (Humphrey, O'Malley, Johnston, & Bachman, 1988).

Expert Power and Technical Support Availability

Technical support refers to skills, procedures, and knowledge technically relevant to the subordinate's creative efforts. It entails information that is in the environment but outside of the subordinate's personal knowledge base. However, when made available to the subordinate, technical support fills information gaps, thereby providing the "missing pieces" needed to facilitate subordinate creativity. It augments the subordinate's knowledge and skills. This ability to augment the subordinate's knowledge makes technical support important because it increases the potential for creative successes.

The use of a leader's expertise to promote creativity was proposed to be important to subordinate creativity because the leader's factual knowledge, technical skills, and special talents provide subordinates with information from which new ideas evolve. When a leader who possesses expert power wishes to promote creativity, s/he is likely to do so by sharing her/his expertise (i.e., personal knowledge, technical skills, and special talents) (see Figure 2). Because the leader's expert power constitutes a source of technically relevant information existing outside of the subordinate, the leader's expert power becomes a potential source of technical support. The leader, a specialist in her/his own right, provides a broader knowledge base (Kimberly & Evanisko, 1981) and increases the potential for cross-fertilization of ideas (Aiken & Hage, 1971). The leader's use of expert power to promote creativity provides a means (i.e., technical support) by which the leader will supplement, and stimulate the usefulness of, the subordinate's knowledge base and skills. Without such information, the subordinate's potential for being creative diminishes because gaps in her/his knowledge, skills and understanding can prevent her/him from making associations necessary for creative task completion.

It should be noted, however, that the strength of the leader's expert power may not lie exclusively in her/his knowledge base or skills related to the subordinate's creative project. In fact, the leader may not know as much about the project as the person charged with the task. Instead s/he may be the only one to know a significant amount about other functions relevant to the subordinate's project. Thereby, the leader can broaden the employee's perspective by providing information about where the organization is and where it is going (e.g., the feasibility of implementing the creative product, familiarity with the targeted population). Therefore, technical support is an

environmental factor that is directed by the leader's use of expert power but is not within the control of the subordinate. The greater the leader expert power used to promote creativity, the more easily new technical ideas can be understood and technical support (i.e., procedures for their development and implementation) be attained (Dewar & Dutton, 1986). Consequently, the use of a leader's expert's power to promote creativity will be positively related to the extent to which a subordinate receives technical support, a mediating variable important to a subordinate's ability to be creative.

Hypothesis 1. Use of a leader's expert power to promote creativity is positively related to the extent to which the subordinate receives technical support from the supervisor.

Technical Support and Subordinate Creativity

A person must possess, and have access to, technically relevant capabilities to be creative. One way in which a leader can encourage the continuous growth of subordinate creativity is by providing technical support that frequently exposes subordinates to new ideas. The different points of view, backgrounds, and types of training inherent in a mix of diversified knowledge types should generate new and broader perspectives (Kimberly & Evanisko, 1981). This provision of different perspectives permits a better understanding of new skills, procedures, and knowledge relevant to the subordinate's creative efforts. As a result, technical support augments the subordinate's personal skills and knowledge, and information sharing becomes the basis for better decision making (Townsend, 1991).

Perhaps because the necessity of technical support is so obvious, it has received relatively less research attention than other factors associated with creativity (e.g.,

motivation). However, research within the innovation literature has demonstrated the importance of technical support to innovative success. For example, Damanpour (1991) conducted a meta-analysis which demonstrated that technical knowledge resources are positively associated with innovation. In his analysis of 23 studies, seven correlations between innovation and technical knowledge resources were found. Additional research by Kanter (1983), concerned specifically with creativity, also has found a positive relation between technical support and creativity. Her empirical evidence suggests that access to channels for innovative problem solving (i.e., technical support) increases individual creativity. Thus, due to technical support's ability to augment the subordinate's personal skills and knowledge, and the research cited here, one may propose that the availability of technical support is positively related to subordinate creativity (see Figure 3). Accordingly:

Hypothesis 2. The availability of technical support is positively related to subordinate creativity.

Legitimate Power and Subordinate Creativity

Legitimate power is defined as the target's perception that the powerholder has a legitimate right to prescribe behavior for him or her (French & Raven, 1959). That is, legitimate power is based on perceptions about the responsibilities, prerogatives, and obligations associated with particular positions of power in an organization or social system. It "includes the perceived right of one position occupant to influence specified aspects of the behaviors of other position occupants" (Yukl, 1994, p. 198). The agent has the right to make particular types of requests, and the target person has the duty to obey.

Legitimate power is an organizationally based power source. The complex pattern of role specialization and role interdependence makes it essential for each person to fulfill role expectations (Katz & Kahn, 1978). Turnover in organizations makes it unfeasible to rely solely on influence sources such as expertise or shared values to maintain organizational goals/compliance (Hamner & Organ, 1978). Given the authority or right to exercise control over things, such as resources, equipment, and materials, legitimate power (whether formal or obtained through mutual agreement) is more acceptable and less difficult to use than most forms of power (Yukl, 1994). Subordinates obey the request and commands of their superior because they believe the superior is acting on the behalf of the organization or a goal worthy of support. Thus, influence based on the use of legitimate power depends on the belief in the justice of the system, rather than on the leader's use of coercion or rewards (Humphrey et al., 1988).

Consideration of the use of legitimate power to promote creativity within the present study was important because it impacts subordinate motivation to be creative (see Figure 4). The relationship between the use of legitimate power to promote creativity and subordinate motivation to be creative is described below.

Motivation: Not Just Intrinsic vs. Extrinsic Anymore

Motivation is anything that provides direction, intensity, and persistence to behavior (Kanter, 1990). Historically, most researchers when discussing work motivation have distinguished between two forms, intrinsic and extrinsic motivation. Intrinsic motivation was initially defined behaviorally as persistence at an activity in the absence of contingent external rewards (Thompson, Chaiken, & Hazlewood, 1993). Today, however, definitions of intrinsic motivation reflect the integration of phenomenological states of the actor's

experience--the emotional experiences of excitement (Reeve, Cole, and Olson, 1986), interest and enjoyment (Izard, 1977), and a state of effortless absorption or "flow" (Csikszentmihalyi, 1975). Deci and Ryan (1987) suggest that these phenomenological states are important because they distinguish intrinsic motivation from other types of internal, but non-intrinsic, motivations that can foster persistence in the absence of external reward contingencies. For example, ego-involvement, is a motivational state in which one links one's feelings of self-worth to one's performance at a particular activity or one's possession of a particular attribute (Ryan, 1982; Ryan, Koestner, & Deci, 1991). Thereby, a person who works on something primarily for its own sake, because it is enjoyable, satisfying, challenging, or otherwise captivating is said to be intrinsically motivated (Amabile, 1987).

In contrast, extrinsic motivation pertains to a wide variety of behaviors where the goals of action extend beyond those inherent in the activity itself. Individuals who perceive their behavior to be the result of some goal separable from the activity itself, for example the pursuit of recognition, are said to be extrinsically motivated (Amabile, 1983; Deci, 1971; Lepper, Greene, & Nisbett, 1973). Thereby, extrinsic motivation is the motivation to work on something primarily because it is a means to an end; the work only represents a way to earn money, gain recognition, satisfy someone else's orders, or meet a deadline (Amabile, 1987).

The intrinsic-extrinsic motivation dichotomy is embedded in many of the major theories of work motivation (Wiersma, 1992) and creativity (e.g., Amabile, 1983). However, growing evidence (e.g., Koestner, Ryan, Bernieri, & Holt, 1984; Pittman, Davey, Alafat, Wetherhill, & Kramer, 1980; Ryan, Mims, and Koestner, 1983) has led Deci and Ryan (1985) to suggest that the simple dichotomy has, in a sense, outlived its

usefulness (Deci & Ryan, 1991). During the 1970's and early 1980's it was frequently assumed that intrinsic and extrinsic motivation had a hydraulic relationship and existed along a single continuum. It was assumed that as extrinsic motivation increased, intrinsic motivation to perform a task would decrease. Research based on these assumptions led to the central, and now well-known, findings that extrinsic rewards or incentives can undermine intrinsic motivation, presumably through shifting the perceived locus of causality from internal to external (Deci & Ryan, 1991). However, further work initiated by Ryan (Ryan, 1982; Ryan et al., 1983) began to show that external contingencies do not necessarily undermine intrinsic motivation, even though the earlier research (e.g., Deci, 1971) indicated that on average they do.

For example, Ryan (1982) found that feedback, whether self-administered or provided by another person, either enhanced or diminished intrinsic motivation, dependent upon the way the feedback was worded. Within this study adult participants worked on an interesting hidden figures task. They were given a series of three puzzle problems and received either informational or controlling feedback. Participants in the informational-feedback condition got feedback that simply compared their performance on each of the three puzzles with what was said to be the average and maximum performance levels. Participants in the controlling-feedback condition got the same feedback as the informational-feedback group; however, they also got one of five evaluative statements following each puzzle. The statements ranged from[1]: "Excellent.

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1 Crossed with the type of feedback was the administration variable. Half of the subjects receiving each type of feedback self-administered it by reading the feedback statements.

You (I) should keep up the good work" to "Very poor. You (I) should try much harder." Following this puzzle solving and feedback period, participants were left alone in the experimental room for 6 minutes with additional remaining puzzles and well as some recent magazines. During this period they were secretly observed to determine what amount of the free-choice time was spent working on the additional puzzles. These times were used to calculate participant intrinsic motivation.

The results of the study indicated that the type of feedback (informational or controlling) resulted in a highly significant difference in intrinsic motivation. Intrinsic motivation was significantly higher for participants who received informational feedback than for participants who received controlling feedback. Other studies (e.g., Koestner et al., 1984; Pittman et al, 1980; Ryan et al., 1983) have revealed similar findings. Ryan et al., (1983) found that performance-contingent monetary rewards could either increase or decrease intrinsic motivation, depending on the interpersonal context in which it was administered.

This evidence has led Deci and Ryan (1985), and Amabile, Hill, Hennessey, Tighe (1994), to suggest that intrinsic and extrinsic motivation are dynamically different and need to be kept separate for some analytical purposes. According to Deci and Ryan (1985), the undifferentiated approach of pitting extrinsic motivation against intrinsic motivation is misleading. The reason for this is that the characterization of all extrinsically motivated behavior as having a perceived external cause, or external locus

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The other half of the participants had the feedback administered to them by the experimenter.

of causality, is incorrect (Deci & Ryan, 1991). Instead, whereas intrinsically motivated behavior is definitionally self-determined (deCharms, 1968), Deci and Ryan (1985) argue that extrinsically motivated action can vary substantially in the degree to which it is self-determined or controlled. That is, one can willingly and freely choose to pursue some extrinsic end (which would be self-determined), or one can be pressured towards a goal by some interpersonal or intrapsychic force (in which case motivation would be controlled).

For example, consider a person who derives pleasure from performing creatively. If the person willingly chooses to perform creatively, s/he is said to be self-determined and intrinsically motivated. By contrast, consider two other individuals. Individual 1 derives pleasure from having her/his name appear on patents but does not enjoy the work required to create a patentable product. Individual 1 willingly chooses to perform creatively, and is thereby said to be self-determined. But, the behavior is extrinsically motivated because the satisfaction is derived from the outcome rather than the work itself. Individual 2 works on patent projects because of a feeling that s/he has to, whether to gain the approval of a significant other, or to satisfy a compulsion. In the case of individual 2, the behavior is also extrinsically motivated but it is controlled.

Self-determination theory. This differentiation of extrinsic motivation as being self-determined or controlled has led Deci and Ryan (1985) to adopt self-determination theory to describe the regulation of behavior. According to self-determination theory, the regulation of behavior varies in the extent to which it is self-determined versus controlled. Self-determined behavior, has an internal perceived locus of causality and is experienced as chosen or volitional. Self-determined behavior involves a true sense of

choice or freedom in doing what one has chosen to do. Controlled behavior, on the other hand, may have an external or internal locus of causality (Deci & Ryan, 1985), and is experienced as pressure from demands and contingencies (Williams & Deci, 1996). Controlled behavior, although undertaken with the intent of achieving an outcome is not truly chosen. Rather some external or internal force compels it; the individual feels as though s/he has to perform.

Key to distinguishing a behavior as self-determined or controlled is its placement upon the perceived locus of causality continuum (see Figure 5). The dichotomy of earlier studies between intrinsic and extrinsic motivation provides an example of the opposing poles of the perceived locus of causality continuum. Intrinsic motivation, by definition, was identified as self-determined (deCharms, 1968). The person spontaneously engages in the activity that interests him or her and no inducements precede the individual's participation in the activity. Thereby, an intrinsically motivated behavior represents the purest form of internal locus of causality and self-determination.

In contrast, behaviors previously referred to as "extrinsically motivated" were usually produced by externally administered consequences (e.g., a reward). Subjects received the external incentive for performing an intrinsically interesting task. As a result of this external inducement the research presented convincing evidence suggesting that external consequences are controlling because the subjects receiving external inducement typically, (a) lost interest in the activity, and (b) would continue only when the external inducement was reinstated (Deci & Ryan, 1991). Thus, extrinsic motivation generally represented an external locus of causality.

Remember, though, that the presence of an external inducement does not insure external causality or controlled behavior. Research by Ryan et al., (1983) has shown that adults can be self-determined when external rewards or other structures are present. Within their study Ryan et al., (1983) found that informationally administered, performance-contingent rewards can increase self-determined behaviors on a free-choice motivation measure, relative to controlling administered, performance-contingent reward, or task contingent reward conditions. They found informational performance-contingent groups significantly out performed the controlling feedback group, and the task-contingent group. No significant difference was found to exist between the controlling administered, performance-contingent group or the task contingent groups. This suggests that informationally administered performance-contingent rewards can enhance self-determined motivation relative to task-contingent rewards, whereas controlling administered, performance-contingent rewards do not (Ryan et al., 1983). This in turn suggests that the pursuit of external goals can be endorsed by one's self (Deci & Ryan, 1991). Accordingly, extrinsically motivated behavior can have an external or internal locus of causality. This point raises the issue of, how do external inducements come to have an internal locus of causality? The answer to this question is "internalization."

Internalization. The concept of internalization explains the process through which external regulations are transformed into internal regulations (Ryan, 1993; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams & Deci, 1996). It is the means by which controlled behaviors can become self-determined. Self-determination theory assumes that humans actively engage their surroundings and in doing so

internalize regulatory processes. That is, people can internalize extrinsic motivation. In doing so they can increasingly integrating the extrinsic element with themselves. However, the internalization can be either less or more effective. Self-determination theory uses the concepts of introjection and integration to describe two different types of internalization that result in different qualities of regulation.

Introjection refers to partial or sub-optimal internalization, in which external regulatory processes are taken in by an individual but are neither identified with or accepted as his or her own (Williams & Deci, 1996). Instead, these introjected regulations pressure the person to behave due to threatened internal sanctions (e.g., guilt) or promised internal rewards (e.g., ego-enhancement). One behaves because one feels one has to and not because one wants to (Deci, Eghrari, Patrick, & Leone, 1994). Thus, introjection represents a controlled form of motivation with an internal locus of causality.

Integration, the optimal form of internalization, is necessary for controlled behavior to become self-determined. It refers to internalization in which people identify with the importance of a behavior and reciprocally assimilate that identification with other aspects of their sense of self (Williams & Deci, 1996). The individual identifies with the value of an activity because of its utility or importance for one's personal goals. In turn the behavior emanates from one's self and the conflict and tension associated with introjection is not experienced (Deci & Ryan, 1991). Thus, integration represents self-determined behavioral regulation.

Within the present study self-determination theory was adopted to differentiate the varying forms of subordinate motivation to be creative. In doing so theory directed

the separation of (a) self-determined forms of motivation into intrinsic motivation and integrated motivation, and (b) controlled motivators into external motivation and introjected motivation. These divisions aid in clarifying the distinctive impacts a leader's use of four of the social powers--legitimate, referent, reward, and coercive--have on subordinate motivation to be creative.

Legitimate Power and Subordinate Motivation to be Creative

First, it was proposed that the use of a leader's legitimate power to promote creativity will be related to subordinate motivation to be creative (see Figure 4). A leader signals an expectation for creativity by using the legitimate power given to her/him via her/his authority. The leader schedules her/his own time and programs work (i.e., what is to be done, who will do it, and what structure will be operative). In the scheduling of her/his own time and programming work the leader announces that certain issues are more important than others. Thereby, wanting to promote creativity, the leader is in a position to impose creativity requirements by using her/his legitimate power. This is because legitimate power provides the leader the authority to induce obligation from the subordinate. Consequently, the leader can directly require subordinates to "be creative." However, the manner in which a leader presents creativity requirements may determine how legitimate power impacts subordinate motivation.

Control vs. Autonomy-Support. Now, it may be that leaders tend to use legitimate power in a controlling fashion. For example, a subordinate is called into her supervisor's office. The supervisor simply tells the subordinate, "From here on out you are to perform creatively." In such an instance the leader is using her/his legitimate power in a controlling manner to mandate the subordinate be creative. In doing so the

leader's dictates constitute a form of external motivation. According to Amabile et al., (1994) the dictates of others provide the individual with the motivation to work creatively in response to something apart from the work itself. The pressure to conform to the leader's legitimate request for creative behavior will be one whose controlling implications are clear to the subordinate. The subordinate is obligated to behave creatively for reasons outside of her personal interests. As a result of this obligation, the subordinate is provided with an external motivator to be creative, in which creativity is only a means to satisfy the ulterior end. Thus, following the social norms requiring obedience, controlling directives originating from the leader's use of legitimate power to encourage creativity should prove to be positively related to the subordinate's external motivation to be creative.

Additionally, the use of legitimate power in a controlling manner should also act to decrease the subordinate's intrinsic motivation to be creative (Amabile, 1983, 1988). According to Amabile (1988), the subordinate's overall motivation to be creative will vary from the subordinate's baseline level of intrinsic motivation as a function of external pressures present in the situation. This position is supported by the initial experiments on intrinsic motivation. From this research it has been shown that external contingencies [(e.g., task-contingent rewards (Deci, 1971), deadlines (Amabile, DeJong, & Lepper, 1976), imposed goals (Mossholder, 1980), or social evaluation (Smith, 1974, as cited in Amabile, Goldfarb, & Brackfield, 1990)], all undermine intrinsic motivation. The reason why is that they tend to be experienced as controlling. The intent behind the external contingencies is usually to pressure or "motivate" people to behave in specified ways (Deci & Ryan, 1991). For example, pressuring locution such as, "Be a good boy

(girl) and do X" or "You should do X" has been found to undermine intrinsic motivation (e.g., Ryan, 1982; Ryan et al., 1983; Koestner et al., 1984) in both adults and children.

In turn, a leader's use of legitimate power to require her/his subordinates be creative is such an external contingency. It is not an essential feature of creativity, but is an external, or social, obligation placed upon the subordinate to behave creatively. As a result of this controlling, external obligation, the subordinate's attention will be redirected away from the intrinsic aspects of the task towards fulfilling the leader's mandate to perform creatively. This redirection of attention should then contribute to an enhancement of the subordinate's external motivation to be creative while undermining the subordinate's intrinsic motivation to be creative (Amabile, 1983, 1985, 1988). Therefore, the subordinate's intrinsic motivation to be creative, which entails participating in creativity for the simple enjoyment of the task, will decline when salient, controlling external pressures placed upon the subordinate by the legitimate leader. These pressures will in turn result in an increase in subordinate external motivation to be creative. This moderation is depicted in Figure 4.

In contrast, a leader may use her/his legitimate power in an autonomy-supportive style, in which case the leader supports and encourages subordinates, but at the same time conveys that creativity is expected as part of the job (Deci, personal communication, 1996). The concept of autonomy-support describes a person in an authority role (e.g. a teacher or manager) taking the target persons' (e.g., students' or subordinates') perspective, acknowledging the other's feelings and perceptions, providing the other with information and choice, and minimizing the use of pressure or control (Williams & Deci, 1996). In analysis of self-determination theory (e.g., Deci & Ryan,

1985; Grolnick & Ryan, 1989; Grolnick, Ryan, & Deci, 1991; Williams & Deci, 1996), it has been demonstrated that the interpersonal factor referred to as autonomy-support, is important for promoting internalization and self-determined forms of regulation (Deci et al., 1994). With this in mind, E. L. Deci (personal communication, September, 1996) suggested that when a leader utilizes legitimate power in an autonomy-supportiive style, that leader may be using legitimate power in a way that does not have the deleterious effects described above in the controlling scenario. Instead, intrinsic motivation may remain intact while external motivation continues to be positively related to legitimate power used to promote creativity. The reason for this neutralizing effect of autonomy-support may be due to the fact that the subordinate may identify with the regulatory structure (i.e., the legitimacy of the leader's directive) and thereby s/he experiences less pressure or conflict and less salience of guilt or anxiety. Limited empirical evidence exists to support these premises (Koestner et al., 1984).

A study by Koestner et al., (1984) demonstrates that when autonomously presented, an external motivator does not necessarily have a negative impact on intrinsic motivation. In the study, 6- and 7-year-old children engaged in an interesting painting task, which imposed set limits regarding the children being neat. When the children's feelings (of not wanting to be neat) were acknowledged, the children's intrinsic motivation for painting was maintained, in spite of the externally imposed limits. Based upon these findings and the recommendations of E. L. Deci (personal communication, September, 1996) it was proposed that when legitimate power is used in an autonomy-supportive manner, legitimate power is neutrally related to subordinate intrinsic motivation.

On the other hand, because legitimate power, within the autonomy-support moderation, continues to be an external motivator, it is proposed to be positively related to subordinate external motivation. The legitimate requirement, no matter how nicely it is presented, remains an external, or social, obligation placed upon the subordinate. The act of being creative is not taken for the simple pleasure of the activity. Rather it is a requirement that must be met in order to satisfy a job requirement or appease the legitimate leader's authority.

Now, some may argue that legitimate power also impacts subordinate integrated and introjected motivation to be creative. If external motivators can be internalized, then why not a leader's legitimate requests to be creative? It is here argued that legitimate power does not impact subordinate integrated or introjected motivation, regardless of leader autonomy-support style. This is because legitimate power is a clear, external contingency. Unlike reward, referent, or coercive power--which proved the target person information about how well s/he is meeting work or relational obligations--legitimate power does not provide performance feedback. The subordinate is not afforded feedback from which s/he can make a value judgement of self-worth or the personal value of performing the assigned task. The consequences of performance or non-performance are founded upon reward, referent, or coercive power. Thereby, there is little need to internalize the external motivator based strictly on authority.

Hypothesis 3. The leader legitimate power and subordinate motivation relationship will be moderated by the subordinate's perceived autonomy-supportiveness of the leader.

Hypothesis 4a. When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be positively related to subordinate external motivation to be creative.

Hypothesis 4b. When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be negatively related to subordinate intrinsic motivation to be creative.

Hypothesis 5a. When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be neither negatively nor positively related to subordinate intrinsic motivation to be creative.

Hypothesis 5b. When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be positively related to subordinate external motivation to be creative.

Subordinate Motivation to be Creative and Subordinate Creativity

According to Amabile (1988) motivation may be the most important component of individual creativity. She states, "No amount of skill in the domain or in methods of creative thinking can compensate for a lack of appropriate motivation to perform an activity. But, to some extent, a high degree of proper motivation *can* make up for a deficiency of domain-relevant skills or creativity-relevant skills. Task motivation makes a difference between what an individual *can* do and what one *will* do" (p.133).

Past creativity research has primarily considered the issue of motivation within the confines of the intrinsic/extrinsic dichotomy. For example, Amabile's (1983) intrinsic motivation hypothesis of creativity has dominated the literature (e.g., Amabile, 1983, 1986, 1987, 1988; Amabile et al., 1994). It simply states that an individual who is

primarily intrinsically motivated is more likely to be creative than a person who is primarily motivated by external rewards or pressures. Within the framework of the present study, and self-determination theory, the findings of these studies are still highly relevant. They must simply be translated to reflect their respective place within self-determined theory (i.e., intrinsic motivation is the optimal form of self-determined regulation, and extrinsic motivation, unless otherwise noted, has usually been operationalized as a form of controlled regulation).

Self-determined motivation: Intrinsic

Past creativity research is heavily entrenched in the concept of self-determined, intrinsic motivation. A central tenant of many researchers (Amabile, 1983, 1987, 1990; Barron & Harrington, 1981; Woodman et al., 1994) is that intrinsic motivation is essential for individual creativity. Individuals who are primarily intrinsically motivated engage in the act for the interest, enjoyment, satisfaction, and challenge from the work itself, and are not distracted by extrinsic goals. This suggests that when people are primarily motivated to do something creative because of their own interest in and enjoyment of that activity, they should be more creative than they are when they are primarily motivated by some goal imposed by others (Amabile, 1983). One reason for this proposed relationship between intrinsic motivation and creativity is that controlled motivated behavior is narrowly directed toward achieving the goal that has been imposed upon the individual (e.g., attaining a reward, meeting a deadline, relieving a sense of guilt, or achieving the approval of an observer). Deci (1978) provides subjective evidence of this:

> "For centuries artists of the Middle and Far East have been hand-weaving oriental rugs. They have done this in traditional ways that reflect the beauty of their heritage and of themselves as individuals. In the late 19th century and increasingly up to the present, Western consumers and business people have used money and other controls to exert influence on the rug weavers. Wool is now being spun by machine rather than by hand; rugs are more uniform in color, design, and size; chemical processes are used to treat the color and sheen of rugs. Weavers have become more extrinsically oriented, and the rugs are very different. It has been said that modern rugs seem to come from the hands of weavers, whereas the older rugs seem to have come from the hearts of weavers" (p. 195).

On the other hand, intrinsically motivated behaviors (e.g., personal satisfaction, creativity) are themselves goals, and a task can become the vehicle for achieving these goals (Deci, 1975). Compared to controlled motivators, intrinsic motivators can lead to task focus. This is because intrinsic motivators are less consciously salient or are perceived as more integrated with task completion. Therefore, intrinsic motivation should assist in maintaining a subordinate's focus on the creative task. A quote by the novelist John Irving explaining his long, intense writing sessions, is suggestive of how intrinsic motivation aids in maintaining focus on a creative task, "The unspoken factor is love. The reason I can work so hard at my writing is that it's not work for me" (cited in Amabile, 1989, p. 56). In turn, the concentration resulting from task focus should result in the enhancement of subordinate creativity. As depicted in Figure 6, subordinate

intrinsic motivation to be creative, as a subset of the subordinate's self-determined motivation to be creative, is positively related to actual subordinate creativity.

Self-determined motivation: Integrated

Little, if any, theoretical or empirical evidence links integrated motivation with subordinate creativity. One reason for this may be the relatively recent differentiation of extrinsic motivation by Deci and Ryan (1985). The bulk of past research has relied on controlling forms of extrinsic motivation, including tangible reward for performance, and externally imposed deadlines (e.g., Amabile et al., 1976; Deci, 1971, 1972, Lepper & Greene, 1975). From a review of the creativity literature it appears the possibility that an extrinsic motivator may eventually become (a) internalized with an integrated internal locus of causality, and (b) performed with a sense of free choice, has not been considered. Rather, it has been viewed that all social constraints, or external motivators, will inhibit creativity because people will come to view their activity as the consequence of those constraints (Amabile, 1987). The error in this viewpoint is the assumption that all social constraints will act only to increase an individuals controlled motivations to be creative.

It is here proposed that integrated external constraints may positively contribute to subordinate creativity. Integration involves internalizing external constraints with which a person can identify with the value of the activity and accepts responsibility for doing it (Deci et al., 1994). As one becomes more integrated, initially external regulations are brought into harmony with the self and are thus experienced as one's own. This allows one to experience a feeling of integrity in action and cohesion of oneself with regard to the activity. Yes, the behavior is still extrinsically motivated; and,

yes, the behavior remains an instrumental action--done because of its importance for achieving personal goals rather than because of its inherent or intrinsic interest. However, it is considered to be self-determined because it is undertaken willingly and freely with no sense of pressure.

This is the key point. Because the behavior has become self-determined, and is undertaken willingly and freely with no sense of pressure, it will share qualities of action more closely with intrinsically regulated behaviors than with externally controlled behaviors (E. L. Deci, personal communication, September, 1996). This means the behavior will be performed with less conscious salience and will be perceived as more integrated with task completion. The individual will be enabled to focus more clearly on the task than on appeasing internal compulsions or external pressures. This in turn should facilitate task focus and positively contribute to task performance. Following this line of argument it was suggested that integrated motivation to be creative is positively related to subordinate creativity (see Figure 6).

Hypothesis 6. A subordinate's self-determined motivation to be creative will be positively related to her/his creativity.

Controlled motivation to be creative: External

Opposing intrinsic motivation within the creativity literature is extrinsic motivation. As mentioned above, extrinsic motivation has most frequently been operationalized in the form of controlled regulations, or external inducements. Intuitively one may assume that controlled motivation should act to enhance creativity. In fact, many have argued that providing external incentives, specifically rewards, should make people more creative. However, considerable empirical evidence from

laboratory experiments has shown that the use of rewards is associated with lower levels of creativity in a variety of tasks (e.g., Amabile, 1979, 1982, 1985; Amabile, et al., 1986; and Koestner et al., 1984). Also, one must consider the long-term effects of rewards on performance behaviors. E. L. Deci (personal communication, September, 1996) and Amabile (1983, 1987) believe that "rewarding creativity will get people focused on doing the thing that was creative rather than on being in the inner place of creativity. In other words, rewarding a creative behavior or output may get more of that behavior or output, but...will not facilitate the person's being creative over time as things change" (E. L. Deci, personal communication, September, 1996).

This is not to dispute the fact that controlled motivation can enhance certain outcome behaviors. According to Amabile (1988) controlled motivation is necessary and desirable under a wide range of circumstances because there are many positive effects of controlled motivation. Under the constraints of deadlines, contract-for-reward, surveillance, etc., work does tend to get done, and it tends to get done on time. Moreover, the technical correctness of the work does not appear to suffer. However, under circumstances requiring creative behavior, controlled motivation has been consistently shown to be negatively related to creativity (e.g., Amabile, 1982, 1985; Amabile & Gryskiewicz, 1987, 1988).

For example, a study by Amabile (1985) demonstrates the negative consequences externally controlled motivation can have on creativity. In this study, 72 young adults were chosen for participation because they identified themselves as actively involved in creative writing. Each subject participated in individual laboratory sessions where they were asked to write two brief poems. Before writing the second poem, participants in

the intrinsic orientation condition completed a questionnaire that focused on intrinsic reasons for being involved in writing (e.g., You get a lot of pleasure out of reading something good that you have written.) Participants in the "extrinsic orientation" condition completed a questionnaire that focused on external reasons for writing (e.g., You want your writing teachers to be favorably impressed with your writing talent). Those in the control condition were not given a questionnaire on reasons for writing. Participants' baseline intrinsic orientation towards writing was established by 3 judges' ratings of participants' responses to an open question. The question asked participants to describe their involvement in writing (other than the number of publications or number of hours spent per week writing poetry, fiction, or drama).

After the poems were written, 12 recognized poets judged the creativity of each of the subjects' two poems. Each judge rated the poems in a different random order. The results of the study indicated that the experimental control group writers wrote poems judged to be fairly high in creativity. Writers in the intrinsic group wrote poems judged somewhat, but not significantly, higher in creativity than those in the experimental control group. However, the results from the extrinsic orientation group proved to be important. The writers who responded to the extrinsic oriented questionnaire produced poems judged to be much lower in creativity than the experimental control and intrinsic groups. The rationale offered for these findings is that these results reflect the salience of external motivators and how they lead an individual to focus on the controlled motivator, thereby directing attention away from the task itself (Amabile, 1983, 1985, 1987; Deci, 1971, 1975, 1996; Lepper et al., 1973).

The findings from the study described above and others (e.g., Amabile, 1979, 1982, 1985, 1987; Amabile et al., 1990; Amabile et al., 1986; and Koestner et al., 1984) suggest a need for additional field study of motivation and creativity. The reasoning for this need is as follows. Within Amabile's (1985) study, the subjects entered the laboratory with initially high levels of interest and involvement (i.e., an intrinsic motivational orientation towards writing) and simply read statements concerning intrinsic or externally controlling reasons for writing. Despite the evidence that the researcher was not able to significantly increase intrinsic orientation, the decrease in creativity in the extrinsic condition is important. Although the effects of the extrinsic manipulation would be expected to be temporary, it is nonetheless alarming that spending approximately five minutes reading and ranking externally controlling reasons for creative writing could have a significant impact on the creativity of creative writers (Amabile, 1985). Consequently, if such a brief and subtle manipulation can have a significantly negative impact on the creativity of highly motivated individuals, the effects of external motivators (including surveillance, and externally imposed deadlines) may also negatively impact subordinate creativity in a significant manner. The external controls present in everyday work environments may act to significantly hinder, or lessen a subordinate's creative ability.

Controlled motivation to be creative: Introjected

As with integrated motivation, little work (e.g., Crutchfield, 1962) has linked introjected motivation with creativity. Instead the controlling internal locus of causality has been thrown under the extrinsic motivation blanket, left undifferentiated. As a

result, theory and research may have been misguided to suggest that to enhance creative thinking all we need to do is free a person from external controls (Amabile, 1987).

Here it is argued that introjected motivation is incompatible with the creative process (Curtailed, 1962). Despite the fact that the regulatory process becomes internalized and does not require external contingencies, it remains a behavioral control--an inner control. Thus, the introjected motivator shares qualities more closely with external controlled motivation than with either form of self-determined motivation. The person's attempts at creativity are not freely and volitionally taken. The individual behaves because s/he feels pressured demanding of oneself, not because s/he wants to. Thereby, the creative efforts are made only to appease internal sanctions such as threats of guilt or promised self-approval. This in turn causes the behavior to become narrowly focused on relieving these self-induced pressures rather than on optimal task performance. The behavior will be performed with greater conscious salience and will be perceived as separate from task completion. The individual will utilize a narrower mind-set that carries with it detrimental effects on creative performance. Thus, it was proposed that introjected motives to be creative are negatively associated with subordinate creativity. The pressures of such motivation only direct behavior because they are a means to an ulterior end (Crutchfield, 1962).

Hypothesis 7. A subordinate's controlled motivations to be creative will be negatively related to her/his creativity.

Referent Power & Subordinate Creativity

Another important source of power is the desire of one to identify with or please a person whom s/he admires. This form of social power is frequently referred to as referent power (French & Raven, 1959). Under the influence of referent power the target person wishes to experience a feeling of oneness or close association with the powerholder. In search of this experience, the target person attempts to establish and maintain a relationship with the powerholder. To do so the target person must behave, perceive, or believe as the powerholder does (French & Raven, 1959; Ivancevich & Donnelly, 1970). As a result of referent relationships, people are usually willing to carry out requests made by the admired individual. Additionally, people tend to imitate the behavior of someone with whom they identify. A supervisor who is well liked and admired can have considerable influence over subordinates and peers by setting an example of proper and desirable behavior (Yukl, 1994). Therefore, the greater the identification of the subordinate with the supervisor, the greater the referent power of the supervisor (French & Raven, 1959).

Referent Power & Subordinate Motivation to be Creative

A fundamental aspect of leader referent power is the personal relationship between the leader and the subordinate. According to several scholars (e.g., French & Raven, 1959; Ivancevich & Donnelly, 1970; Yukl, 1994) the continuing appeal of the referent leader is based upon the subordinate's inspiration to adopt or imitate the attitudes and behaviors demonstrated by the leader. Accordingly, a referent leader who champions creativity and demonstrates creative behavior should inspire subordinates to become creative themselves.

The subordinate's motivation derived from a leader's use of referent power to promote creativity is proposed to be primarily extrinsic. The subordinate does not freely perform creatively for the inherent satisfaction associated with creative activities (i.e., s/he is not intrinsically motivated). S/he performs creatively in order to obtain the goals extending beyond those inherent in the activity itself. The subordinate's goals are to be creative like the leader, and to gain the leader's approval through creative behaviors. Creativity, thereby, becomes an extrinsically motivated activity by which the desired outcome, relationship maintenance, can be obtained.

However, the dynamics of this extrinsic motivation are complex. Unlike the relationship between legitimate power and subordinate motivation--in which a clear external or controlling form of extrinsic motivation is present--the extrinsic motivation generated by the referent power-subordinate motivation relationship is likely to become internalized (E. L. Deci, personal communication, September, 1996). That is, the subordinate will adopt, or internalize the referent leader's concept of creativity at work.

The past decade of work dedicated to differentiating extrinsic motivation has presented evidence that not all extrinsic incentives are externally regulated (Deci & Ryan, 1985). Rather, this work has shown that as individuals encounter the challenge of achieving meaningful relationships with others, the need for relatedness provides the target person the primary impetus for internalizing external values and regulatory processes (Deci & Ryan, 1991). This enables people to acquire behaviors and values that are not originally interesting or intrinsically motivated, but may be important for effective social functioning (Deci et al., 1994; Deci & Ryan, 1991).

Accordingly, the subordinate engages socially at work. In doing so, the subordinate realizes that a developed willingness to become creative will be valuable in her/his relationship maintenance with the referent leader. S/he wants to be accepted by the referent leader; and, this will in part require the subordinate to share creative practices and ideas with the leader, regardless of whether the creative practices are interesting or their practical value is apparent. As a result, the subordinate moves towards internalizing her/his creative experiences and actions with a sense of relatedness to the referent leader. However, a subordinate's internalization of the referent leader's creativity promotion may be either more or less effective. That is, they may become integratively motivated or introjectively motivated to be creative. Which form of internalization will depend partly on whether the leader is perceived by the subordinate as autonomy-supportive or controlling. Empirical evidence by Deci et al., (1994) suggests that "the type of internalization--namely, integration versus introjection--appears to be dichotomously dependent on whether the context appears to be supportive or non-supportive of self-determination" (p. 138). In their study of undergraduate college students, Deci et al., (1994) found supportive contexts promoted integration (as represented by positive correlations between behavior and self-report measures), whereas contexts that were non-supportive promoted introjection (as represented by negative correlations).

Supported by this and other studies (e.g., Deci, Connell, & Ryan, 1989; Williams & Deci, 1996) it is proposed that perceived leader autonomy-support will moderate the relationship between leader referent power used to promote subordinate creativity and subordinate motivation to be creative. Specifically, it is projected that when a leader is

perceived to be autonomy-supportive, that leader's use of referent power to promote creativity will be positively related to subordinate integrated motivation to be creative. In contrast, when a leader is perceived to be controlling, it is proposed that leader's use of referent power to promote creativity will be positively related to subordinate introjected motivation to be creative (see Figure 7). The reasoning for these propositions is presented next.

Autonomy-support and Integration. Autonomy-supportive contexts--ones in which significant others offer choice, provide a meaningful rationale, minimize pressure, and acknowledge the target individual's feelings and perspectives--have been shown to facilitate internalization and integration of regulatory processes (e.g., Deci et al., 1994; Grolnick et al., 1991; Williams & Deci, 1996; Williams et al., 1996). As a result, autonomy-support promotes effective, long-term behavior change (Williams et al., 1996).

For example, Williams and Deci (1996) proposed that medical students who learn about interviewing patients from autonomy-supportive instructors, will become integrated in the regulation of that learning and will in turn be more likely to adopt the values espoused by their instructors. The results from this study found that the perceived autonomy-support of the instructors explained significant changes in the students' relative autonomy, perceived competence, and psychosocial beliefs over the time frame of the course. Similarly, Grolnick et al., (1991) showed that children who perceived their parents as more autonomy-supportive displayed enhanced internalization of academic self-regulation and achieved better grades.

This evidence suggests that a subordinate, who desires to identify with a referent leader, will be inclined to internalize and potentially integrate the exterior elements of creativity within the work place, provided the leader is perceived as autonomy-supportive. In doing so, the subordinate will assimilate the concept of performing creatively at work and accept creativity as a behavior s/he personally values.

Remember, though, that even after the subordinate has integrated the creative regulation, it will still be extrinsically motivated. It remains an instrumental action--done because of its importance for achieving the subordinate's personal goals (i.e., relationship maintenance) rather than because of its inherent or intrinsic interest. However, because it is undertaken willingly and freely with no sense of pressure, it will be considered self-determined rather than controlled.

Thus, it is projected that perceived leader autonomy-support will moderate the relationship between leader referent power and subordinate motivation to be creative. Resulting from this moderation, if the leader is indeed perceived as being autonomy-supportive, and not controlling, it is proposed that leader referent power will be positively related to subordinate integrated motivation to be creative (see Figure 7).

Control and Introjection. According to Deci and Ryan (1985), human activity occurs within real or imagined social contexts. As we work, perform, play, study, or relax, other people often observe us, make requests of us, or coact with us. Even when others are not actually present, we may be aware of what they would like us to do or how they would like us to do it. In the classic forms of introjection, the socializing agent still figures phenomenally in the regulation of action; compliance is associated with a sense of the other's approval, whereas transgressions connote imagined disapproval (Williams

& Deci, 1996).

As a result, when internalized regulations are introjected there is an inherent tension because the individual still experiences a sense of "being regulated" rather than operating with an integrated sense of volition (Deci & Ryan, 1991). This causes introjection to be a relatively ineffective type of internalization because it involves regulations becoming part of the person but not part of what Deci and Ryan (1991) refer to as "the integrated self." Thus, a request from a referent leader to do an activity that is not intrinsically interesting to a subordinate can create feelings of pressure or tension within the subordinate. If the leader's request employs "shoulds," "musts," and "have tos," the functional significance of the communication will be controlling and will facilitate introjected internalization (Deci et al., 1994).

Thereby, wanting to be accepted by a referent leader, a subordinate may move towards identifying with behaviors regulated by that leader. If the leader is perceived as controlling, instead of autonomy-supportive, the subordinate's internalization of the regulated behaviors is likely to be introjected. Here it was proposed that if a leader is perceived as controlling by a subordinate, leader referent power will be positively related to subordinate introjected motivation to be creative.

Subordinate intrinsic motivation to be creative. Following the rationale of the above sections, the subordinate's motivational orientation to be creative becomes extrinsic as s/he falls subject to the leader's referent influences. Wanting to be more like the referent leader, the subordinate attempts to be creative in order to maintain or enhance her/his relationship with the leader. Consequently, as the subordinate begins to perceive creativity as a means by which to obtain a desired end, the subordinate's

intrinsic motivation to be creative may change.

If the leader is perceived as controlling, a negative relationship between leader referent power used to promote subordinate creativity and subordinate intrinsic motivation to be creative should be found. The internally controlling regulation generated by introjected regulations will contribute to a decrease in intrinsic motivation (Plant & Ryan, 1985). The study by Ryan (1982) cited earlier showed that subjects induced to become internally controlling experienced greater tension, and pressure, than task-involved participants. An additional dimension of this study was involvement induction. Half of the subjects were assigned to ego-involvement and half to task-involvement conditions. Ego-involvement was created by leading subjects to believe that performance on the target activity was a reflection of "creative intelligence." Task-involvement was created simply by drawing participants' attention to the activity without mentioning its relation to creative intelligence. Subsequently the results of study showed that ego-involved (or internally controlled) participants displayed less intrinsic motivation than task-involved participants. These findings have been replicated and expanded (e.g., Koestner, Zuckerman, & Koestner, 1987; Ryan et al., 1991).

On the other hand, field studies have produced evidence that when the general interpersonal climate, such as a classroom (Deci, Schwartz, Sheinman, & Ryan, 1981; Ryan & Grolnick, 1986), or a work-group climate (Deci, et al., 1989), is experienced as autonomy-supportive rather than controlling, it has been associated with greater intrinsic motivation. Consequently, a positive relationship between leader referent power used to promote subordinate creativity and subordinate intrinsic motivation to be creative should be found when a leader is perceived as autonomy-supportive.

Hypothesis 8. The leader referent power--subordinate motivation to be creative relationship will be moderated by the subordinate's perceptions of the leader's autonomy-support.

Hypothesis 9. When a leader is perceived as being autonomy-supportive, use of leader referent power to promote creativity will be positively related to both subordinate intrinsic and integrated motivation to be creative.

Hypothesis 10a. When a leader is perceived as being controlling, use of leader referent power to promote creativity will be positively related to subordinate introjected motivation to be creative.

Hypothesis 10b. When a leader is perceived as being controlling, use of leader referent power to promote creativity will be negatively related to subordinate intrinsic motivation to be creative.

Referent Power and Subordinate Attitudes Towards Creativity

An attitude may be defined as a tendency to evaluate an object or activity with some degree of like or dislike (Johnson, 1991). Attitudes have specific properties that can be discovered and described. They are believed to have three components: cognitive, affective, and behavioral. The cognitive component represents knowledge of the issue about which a judgement is to be made, for example, proper administrative procedures. The affective component concerns positive or negative feeling about those cognitions. For example, a Department Head may dislike having to file a departmental performance evaluation each semester.

Attitudes also have a behavioral component, which means that attitudes dispose people to act in certain ways. For example, students with positive attitudes towards

school tend to do more homework and attend class more regularly than students who have negative attitudes towards school (Eagly & Chaiken, 1993). In turn, it may be proposed that a subordinate holding a positive attitude towards her/his performing creatively at work should demonstrate more creativity than a subordinate who holds a negative attitude. However, attitudes do not always predict behavior. Fishbein and Ajzen (1975) have shown that some attitudes are too general to predict how people will act. Thus, attitudes best predict behavior when they specifically pertain to relevant behaviors (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). For example, knowing that a subordinate thinks "creativity is good" (i.e., has a positive attitude about creativity in general) is not likely to predict her/his creativity at work. Instead, it is more informative to know that the subordinate has a positive attitude towards her/his creativity (i.e., a positive evaluation of her/his performing creatively at work). It is more informative because it is the person's attitude towards a specific behavior, in this case personal creativity at work, that best predicts future behavior (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975).

Thus, a subordinate's attitude towards her/his own creativity reflects how s/he feels about personally performing creatively within her/his department or organization. The polarity of the subordinate's attitude (i.e., positive or negative) should be reflected in her/his behaviors. One reason for this can be linked to the subordinate's beliefs about specific consequences resulting from her/his performing creatively at work. According to Fishbein and Ajzen (1975) attitudes concerning a particular behavior are formed on the basis of beliefs about specific consequences of performing that behavior. A person who believes that performing a given behavior will lead to mostly positive outcomes will

hold a favorable attitude towards performing the behavior. In contrast, a person who believes that performing the behavior will lead to mostly negative consequences will hold an unfavorable attitude towards performing the behavior (Ajzen & Fishbein, 1980). To illustrate, consider a worker who believes that creativity will make her/his supervisor happy, will provide an opportunity for promotion, and will bring more positive attention to her/his department. An employee holding such beliefs is likely to evaluate positively the act of creativity, which in turn should lead the subordinate to make attempts at creativity. In contrast, a subordinate is likely to hold an unfavorable attitude towards creativity if s/he believes that the behavior will displease the supervisor, will waste precious departmental resources, and may result in suspension from work. Consequently, an unfavorable attitude towards subordinate creativity should result in fewer creativity attempts by the subordinate.

Bandura has demonstrated that socially-mediated responses such as opinions and attitudes (Bandura & Walters, 1963) may be acquired by subjects simply through the observance of these behaviors in models. Therefore, the utility of an attitude may be its social-adjustment value rather than its actual instrumentality to goal attainment (McGuire, 1968). This is what Kelman (1958) called the "identification" mode of attitude formation, wherein the believer adopts the attitude so as to help maintain a satisfying role relationship with some significant other, for example, an authority figure. Expanding upon Kelman's (1958) work one may propose that attitudes so based should then reflect the use of referent power by the leader over the believer.

That is, in discussing the sources of referent power (i.e., the target's desires to identify with the referent powerholder) one deals with the target's motivation to attain a gratifying self-concept through her/his position on the issue vis-à-vis the position advocated by the powerholder. The critical point for the target in adopting the position urged by the powerholder is whether s/he can enhance self-esteem through her/his identification with the powerholder (McGuire, 1968). Accordingly, the target may acknowledge the referent power held over her/him, and the social-adjustment value of changing her/his attitude, by making a verbalization similar to the following: "I want to be like X, and will be more like her/him if I believe as s/he does." Thus, subordinates who identify with their referent leader want to be more like the leader and to be accepted by her/him (Yukl, 1994). One way to accomplish these goals is to adopt the attitudes held by the referent leader. Thereby, subordinates' attitudes toward issues of relevance to the referent leader should come to reflect the leader's position on the issue.

Within the context of subordinate creativity, it was proposed that the use of referent power by a leader to promote creativity is positively related to subordinate attitudes towards creativity (see Figure 8). The leader uses her/his referent power to promote creativity. Under the influence of the leader's referent power, the subordinate seeks attitude congruency with the leader. However, the more accepted by or referent to the subordinate the leader is, the more effective her/his attempts to influence subordinate's attitudes should become. Cartwright (1965), supports this statement by suggesting that leaders who are highly accepted by their subordinates will be more effective in producing opinion or attitudinal changes than will leaders who are not so

highly accepted. Thus, the use of referent power by a leader to promote creativity will be positively related to subordinate attitudes towards subordinate creativity.

Hypothesis 11. Use of leader referent power to promote creativity will be positively related to subordinate attitude towards their own creativity.

Subordinate Attitude Towards Their Own Creativity & Subordinate Creative Behavior

Intuitively one may propose that positive subordinate attitudes toward their own creativity should act to enhance creativity, while negative attitudes toward personal creativity should hinder subordinate creativity. Within the innovation literature evidence suggests that this proposition may in fact be true. For example, within the innovation literature Kaluzny, Veney, & Gentry (1974, as cited in Pierce & Delbecq, 1976) and Hage and Dewar (1973) claimed that attitudes favorable to change play an important role in predicting organizational innovation. Supporting this claim Pierce and Delbecq (1976) found evidence that an individual's attitude towards "innovativeness" can be highly correlated with the respondent's actual innovative behavior. Ettlie and O'Keefe (1982) moderately support the hypothesis that people with more formal authority exhibit greater consistency between changed attitudes and innovative behaviors (i.e., because they are less influence by the organizational climate).

Beyond the innovation literature, additional work supporting the proposition that subordinate attitude towards her/his own creativity should be positively related to subordinate creative behavior comes from the recent attention given to the influence of affect on performance. Hence, a study of affect, as a component of attitudes, may facilitate understanding how positive and negative attitudes are predicted to impact subordinate creativity. For example, positive affect has been found to exert significant

effects on several aspects of behavior (Isen & Baron, 1991). It has been found to increase efficiency in making decisions (Isen & Daubman, 1984; Isen & Means, 1983; Isen, Rosenzweig, & Young, 1990, as cited in Isen & Baron, 1991) and to broaden the range of material individuals think about in response to stimuli (Isen & Daubman, 1984; Isen, Johnson, Mertz, & Robinson, 1985). Isen and Daubman (1984) found that positive affect led subjects to display more flexibility in their categorization schemes. Likewise, Isen et al., (1985) showed that individuals experiencing a positive affective state, compared to controls, gave more unusual and more diverse associations to neutral stimulus words. Finally, positive affect has been found to specifically promote creative problem solving (Isen, Daubman, & Nowick, 1987). In their research Isen et al., (1987) found that positive affect improved performance on Dunker's (1945, as cited in Isen et al., 1987) candle task and Mednick's (1962, as cited in Isen et al., 1987) Remote Associates Test--tasks that are generally regarded as requiring creative ingenuity. For example, participants' in the positive affect condition of Experiment 2 performed significantly better on Dunker's (1945, as cited in Isen et al., 1987) candle task than participants in all of the comparison conditions.

Alternatively, Isen et al., (1987) note that, it is possible to think of positive and negative attitudes as opposite poles of a single dimension, if not as the same thing. Therefore, one might expect the two to produce opposite effects. According to Isen et al., (1987, p. 1130) this "may be true, when appropriate levels and types of negative affect are investigated." This may lead one to interpret findings regarding the impact of positive affect on creativity as suggesting that negative affect should impede or impair creativity. Thus, negative affect, in the form of dislike towards their own creativity, may

potentially lead subordinates to not perform creatively or at a significantly lower level of creativity than subordinates who hold a positive attitude (see Figure 9).

Hypothesis 12. Subordinate attitude towards his/her own creativity will be positively related to his/her creativity.

Reward Power & Subordinate Creativity

Reward power is based on the target's perception that the powerholder has the ability and resources to dispense rewards to her/him (French & Raven, 1959). It involves promising specified positive outcomes to motivate changes in behavior. This can include the power to give raises, bonuses, and promotions; to grant tenure; and to recognize with praise and awards.

Reward power, is often identified as an organizationally based power source. The potential to influence others through the use of rewards is a joint function of the leader, the followers, and the situation (i.e., organizational policy and the leader's position in the hierarchy). The range of the leader's reward power is specific to those regions within which s/he can reward the target for conforming (French & Raven, 1959). Additionally, the use of reward power also depends on the subordinate's perceptions that the leader's request or assignment is reasonable and performable.

Rewards have been, and continue to be, one of the most common forms of leader influence. Founded on orthodox behaviorism, rewards are believed by most supervisors to lead subordinates to persist at activities. However, empirical evidence presents mixed results concerning the truth of this belief. Research concerned with subordinate attitudes presents evidence that rewards can lead to positive attitudes towards the rewarded task (e.g., Crano et al., 1988). Yet, studies concentrating on the relationship between rewards

and performance suggest rewards potentially decrease performance outcomes by shifting the subordinate's attention away from the task to reward attainment (Simon, 1967; Woodman et al., 1993). That is, rewards, a form of extrinsic motivation, potentially alter the workers' motivational orientation.

Thus, the use of rewards has been identified as influencing subordinate attitudes and subordinate motivational orientation. Interestingly, both variables, attitudes and motivation, have been identified as important factors in determining individual behavior (Ajzen & Fishbein, 1980; Amabile, 1983, 1988; Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975). In an effort to understand subordinate creative behavior, it was proposed that a leader's use of reward power plays a role in subordinate creativity. It does so through its relationships with subordinate attitudes towards their own creativity, and subordinate motivation to be creative.

Reward Power and Subordinate Motivation to be Creative

Beginning around 1970, researchers began to question seriously the assumption that rewards will always enhance, or at least maintain, all behavior. Intrinsic motivation theorists suggested that the use of extrinsic rewards to elicit an action that the individual would have undertaken voluntarily can diminish the actor's subsequent interest in the induced activity (e.g., deCharms, 1969; Deci 1971, 1975; Lepper et al., 1973). Pioneering work by Deci, Lepper, and their colleagues has established the robustness of this phenomenon which they call the overjustification effect (Benware & Deci, 1975; Deci, 1971, 1975; Deci & Ryan, 1985; Lepper et al., 1973; Lepper & Greene, 1978). Although conclusions drawn from these studies have been challenged by reinforcement theorists (e.g., Reiss & Sushinsky, 1975) the phenomenon of decreased intrinsic

motivation following expected external reward has been empirically well documented (Amabile et al., 1986). When people receive rewards for working on an interesting activity, they tend to display less interest in, and willingness to work on, the activity after termination of the reward than do people who participate without receiving a reward.

The overjustification effect has been most reliably observed when rewards were expected (Lepper et al., 1973), salient (Ross, 1975), and contingent on task engagement (Ryan et al., 1983). However, several theorists (Amabile et al., 1986; Crano et al., 1988; Rosenfield, Folger, & Adelman, 1980; Ryan et al., 1983) note that when rewards are differently structured, they have discerningly different effects. Ryan et al., (1983) provided a useful taxonomy of the reward structures related to reward effects.

In their review, Ryan et al., (1983) indicated that rewards that were given independently of task engagement, i.e., task-noncontingent rewards, were the least likely to undermine intrinsic motivation. They suggest that this is because the reward is not given for doing the activity and thus is not salient as a control. In contrast, task-contingent rewards, i.e., those made contingent on performing a task, have reliably and consistently been shown to undermine intrinsic motivation. These results are attributed to presumed salience of the controlling function the rewards represent. Lastly, the effects of performance-contingent rewards, i.e., those given for attaining a specified level of performance, are more complicated. Because the rewards in this condition provide positive competence feedback, the appropriate comparison condition is one that conveys the same feedback without a reward. When such comparisons have been made, performance contingent rewards have generally been found to undermine intrinsic motivation. However, at other times they have been found to maintain or enhance

intrinsic motivation whenever the controlling aspect is minimized and competence cues are emphasized (Harackiewicz, Manderlink & Sansone, 1984; Rosenfield et al., 1980).

In summary, many studies have shown that rewards, on average, act to undermine intrinsic motivation (Deci, 1971; Deci & Ryan, 1985; Lepper & Greene, 1978; Lepper et al., 1973). Whether such results are conceptualized within the theoretical boundaries of Bem's (1972) self-perception theory, or Deci's (1975) cognitive-evaluation theory, it appears that rewards tend to represent external contingencies that restrict self-determination. That is, rewards, tend to represent external pressures or evaluative controls directed toward inducing people to do things they would otherwise not freely do.

These external pressures or evaluative controls also apply to the ego-enhancing effects rewards can have when they are perceived as a form of performance feedback. Admittedly, providing performance feedback is extremely important when people are ego-involved in an activity. This is because performance outcomes are the basis on which they judge self-worth (Deci & Ryan, 1991). Thus, rewards that provide performance feedback will be instrumental to ego-involved people for attaining their internally controlling goal of self-esteem maintenance. When the reward is received, they have achieved their goal and have no further need to persist at the activity. On the other hand, if the ego-involved individuals do not gain positive feedback from the reward (particularly on an ambiguous task where they cannot reliably assess their own performance), they will not have achieved their goal of succeeding and maintaining their sense of self-worth. Consequently, the individuals are likely to persist at the target

activity--if given the freedom to do so--only to "self-administer" positive feedback through personal improvement observations (Deci & Ryan, 1989, 1991).

Research conducted by Ryan and Deci (1989) has shown how this can happen. In their study, ego-involved adult subjects received either positive feedback or no feedback after performing a drawing task with their non-dominant hand. Subjects who did not receive positive feedback persisted significantly longer than those who did. Thus, internally controlling or introjected regulation will lead people to persist at an activity when the persistence is instrumental to attaining an internally, controlling goal. Ryan and Deci's (1989) findings also suggest that intrinsic motivation and ego-involvement are different (in fact, incompatible) forms of internal motivation, yet sometimes have the same behavioral manifestation of persistence (Deci & Ryan, 1985).

Based on the findings within the reward and intrinsic motivation literatures it was suggested that a leader's use of reward power to promote creativity is: (a) negatively related to both self-determined motivators (i.e., subordinate intrinsic and integrated motivation to be creative), and (b) positively related to both controlled motivators (i.e., external motivation and introjected motivation to be creative) (see Figure 10). That is, a leader who champions creativity, and possesses reward power, can be expected to utilize this power in an effort to impact subordinate motivations to be creative. In doing so s/he creates, and reinforces, external and internally controlling motivators. Consequently, the leader may adversely effect the subordinate's ability to integrate the external reward contingencies. Additionally the leader may adversely effect intrinsic motivation because the rewards redirect attention away from the heuristic aspects of the task toward reward attainment and technical rule-bound aspects that ensure a minimal level of performance

(Woodman et al., 1993). Thus, when the subordinate evaluates the reasons for her/his creative behaviors, the subordinate should attribute the behavior to external or internally controlling (e.g., ego-enhancing) motivation. The rewards should be seen as an end for which creativity engagement is the means. However, for individuals who are not motivated, or are extrinsically motivated, salient extrinsic rewards may act to direct additional effort towards creativity (Amabile, 1983, 1988; Amabile & Gryskiewicz, 1987; Crano et al., 1988); thereby, enhancing extrinsic and/or introjected motivation to be creative.

Hypothesis 13. Use of leader reward power to promote creativity is negatively related to a subordinate's self-determined motivation to be creative.

Hypothesis 14. Use of leader reward power to promote creativity is positively related to a subordinate's controlled motivation to be creative.

Reward Power and Subordinate Attitude Towards Creativity

A subordinate's beliefs concerning the consequences linked to subordinate creativity may be influence by a leader's use of reward power to promote creativity. The subordinate anticipates a positive outcome from her/his creativity as a result of a leader's use of reward power to promote creative behavior. By using reward power to encourage creativity, the leader potentially influences the subordinate's attitude towards her/his own creativity. Thus, reward power is proposed to impact subordinate attitude towards creativity.

However, literature on the impact of rewards on attitudes is limited. Often consideration of the reward-attitude relationship is secondary to conversation or research focusing on how rewards influence intrinsic motivation (e.g., Amabile, 1983, 1985,

1988; Deci, 1971; 1975; Deci & Ryan, 1985; Lepper & Greene, 1978; Lepper et al., 1973). Most notably the discussions are frequently dedicated to the overjustification effect (i.e., the diminishing of an actors interest in an activity following reward), thereby leaving attitudes to be inferred on the basis of task engagement subsequent to reward presentation.

Despite limited attention, theory and some empirical evidence suggest that rewards may act to enhance a positive attitude towards the task being rewarded. Crano and his colleagues (Crano et al., 1988; Crano & Sivacek, 1984) acknowledge the tendency of past research to focus on the overjustification effect and factors that interact with reward. From these findings Crano et al., (1988) and Crano & Sivacek (1984) expand upon the overjustification findings to explain how rewards can act as reinforcers to create a positive attitude towards the rewarded task.

Crano et al., (1988) present evidence suggesting that when rewards are performance-contingent they have the potential to enhance attitude towards the rewarded task. The actor associates the reward with the attainment of some achievement level. Under such circumstances a positive reaction can be expected as a consequence of reward. Thus, an enhancement of attitude would result as a consequence of reinforcement (Crano & Sivacek, 1982, 1984).

Crano and his colleagues' suggestion that attitude enhancement may result from the positive reaction to reinforcement closely resembles arguments recently appearing within the affect literature. Within the affect literature theorists (e.g., Isen & Baron, 1991; Staw & Barsade, 1993) have begun to advocate a closer look at the affective component of attitudes in order to better understand how attitudes impact behavior.

A number of recent writings relevant to the reward-attitude relationship suggest that rewards, whether contingent or non-contingent (Eagly & Chaiken, 1993), may lead to attitude enhancement due to the positive affect they create. Studies concerned with the acquisition of attitudes suggest that this affective component can sometimes derive from a process resembling classical conditioning (Lohr & Staats, 1973, in Isen & Baron, 1991). That is, when individuals experience positive affect in the presence of some person, object, or event, they may acquire positive affective reactions to the activity through a process of association (Bryne, 1971). Thus, when the individual evaluates her/his affect concerning the person, object, or event, the positive affective state is translated into a liking or positive attitude towards the person, object, or event.

Founded upon the above discussion, it was proposed that the use of reward power to promote creativity is positively related to subordinate attitude towards their own creativity. When presented with a reward the subordinate will come to value the feedback and positive affect the reward offers, thereby leading to an enhanced positive attitude towards creativity (see Figure 11).

Hypothesis 15. Use of reward power to promote creativity is positively related to subordinate attitude towards their own creativity.

Coercive Power and Subordinate Creativity

Coercive power is defined as the target person's perception that the powerholder has the ability to punish her/him (French & Raven, 1959). That is, coercive power is based on the subordinate's perception that a superior has the ability to inflict punishment or aversive consequences on the subordinate if s/he fails to conform to the leader's influence attempt. Additionally, because, in many organizations, the extent to which

leaders can use coercion is constrained by hierarchical levels and organizational policy (Abdalla, 1987; Stahelski, Frost, & Patch, 1989), coercive power is also identified as an organizationally based source of power. Thus, coercive power is partly a function of the leader, the target, and the situation which often limits the coercive actions the leader may take.

Historically, the use of coercion has been one of the most common forms of leader influence. Examples of coercive power use include parents spanking children, teachers detaining disruptive students after school, or employers firing non-productive workers (Klein, 1991). Over the past decades, however, there has been a general decline in its use by all types of leaders (Katz & Kahn, 1978). This decline in use may be due to new insights into the coercion-conformity relationship. The nature of the coercion-conformity relationship leads the powerholder who uses coercive power frequently to become dependent upon its use. Shaw and Condelli (1986) found that the powerholder who uses coercive power has less likelihood of being able to use it again. As a result, s/he must heighten surveillance, at the risk of undesirable side effects such as anxiety and resentment. Thus, it is best to avoid using coercion except when absolutely necessary. In work organizations, the most appropriate use of coercion is to deter behavior detrimental to the organization, such as illegal activities, violation of safety rules, theft, and direct disobedience of legitimate requests (Yukl, 1994). However, the person using coercion should note that coercion is unlikely to result in commitment. Only when skillfully used is there a reasonable chance that coercion will result in compliance.

In search of compliant behavior, a leader who uses coercive power to change subordinate behavior must design the punishment or threat so that it contains information linking the behavior to various negative outcomes. In doing so, the leader influences the subordinate's beliefs about the consequences of performing the behavior. According to Fishbein and Ajzen (1975) such change in beliefs will lead to changes in attitudes towards the behavior. However, numerous researchers (e.g. French & Raven, 1962; Slocum, 1970) have found evidence that coercion influences behavior independently of attitudes. They maintain that the use of coercion may create public but not private compliance. In other words, coercion may cause individuals to change their behavior even if they do not change their attitudes. According to cognitive dissonance theory (Festinger, 1957), the individuals can justify their behavior to be the result of threat or punishment, thereby having no cause to change their attitude.

Thus, a subordinate who faces negative consequences for failure to perform creatively should change her/his behavior in an attempt to avoid coercion. However, the subordinate, in an effort to avoid negative reinforcement or punishment, can justify such public compliance. As a result, the subordinate should demonstrate a change in creative behavior, but not in personal attitude towards her/his performing creatively at work. Following this logic, which is founded on the findings of those who have demonstrated that coercion can change behavior (e.g. French and Raven, 1962; Humphrey et al., 1988; Slocum, 1970), it was proposed that coercive power used by a leader to promote creativity can impact subordinate creativity (see Figure 12).

Little or no work has been dedicated to determining the influence coercion has on subordinate creativity. Philosophically, many psychologists believe that coercion is

unnecessary, cruel, unproductive, and possibly unethical (Yukl, 1994). They believe that for the most part workers are responsible, motivated, and interested in helping the organization meet its goals. As a result, the use of coercion is seen as inappropriate. Consequently, there has been little formal research on the effects of coercion or punishment systems. This gap in the research exists in spite of the fact that coercion of one form or another is universal in organizations.

Unfortunately, the limited existing research concerned with how coercion impacts work performance presents mixed results. Some authors report a strong positive relationship between punishment and performance (Beyer & Trice, 1984; Podsakoff & Todor, 1985). Others have found either no relationship between punishment and performance or a negative one (e.g., Curphy, Gibson, Asiu, McCown, & Brown, 1992, as cited in Hughes, Ginnett, & Curphy, 1993; Curtis, Smith, and Smoll, 1979; Podsakoff, Todor, & Skov, 1982). Because the differences found across the studies may be attributed to variability in (1) the level of punishment administered, (2) the manner in which punishment was administered, (3) the establishment of group cohesiveness and group norms, and (4) the number of opportunities for the superior to administer punishment, further research is needed before making definitive conclusions regarding the impact of coercion on subordinate performance can be made.

Additionally, it should be noted that many of the studies evaluating the punishment-performance relationship often implicitly assumed punishment to enhance performance (i.e., by correcting problem behaviors). However, only Curphy et al., (1992, as cited in Hughes, et al., 1993) directly test this assumption. They found, across 4,500 incidents of documented punishment and performance data, that low performance

led to higher levels of punishment. Interestingly, this suggests that performance impacts punishment not punishment directs performance.

Thus, faced with equivocal results from the punishment and work-performance literature, the position taken here is that a leader who uses coercive power to promote creativity should in fact fail to do so. The presented coercion will likely represent external pressures or evaluative controls directed towards inducing a subordinate to perform creatively. A subordinate confronted by forced compliance (i.e., "Be creative or be punished" or "Be creative or receive negative reinforcement"), should feel obligated to make attempts at creativity. Resulting from this sense of obligation, the subordinate should expend energy making repeated attempts at being creative. However, even as the subordinate increases attempts at creativity, s/he can be expected to become distracted from the creative task. Wanting to avoid undesirable consequences, the subordinate's creative efforts should become more and more focused on threat or punishment avoidance than on creativity. As a result the subordinate's attention shifts away from creativity and the subordinate's motivation to be creative becomes externally controlled.

However, the external controls coercion represents may also become introjected, but not integrated, by the subordinate. Performance outcomes are the basis upon which many individuals judge their personal self-worth (Deci & Ryan, 1991). Thereby, coercion can represent a form of performance feedback. When presented, punishments or threats indicate to the subordinate that s/he has failed to meet set performance criteria. When the punishments or threats are withdrawn, or are not presented, the subordinate hopes s/he is meeting acceptable minimum performance levels. In a sense, the lack of

punishment or threat affirms the subordinate's competence in a controlling matter. As the subordinate comes to understand the importance of punishment or threat avoidance to personal goals (e.g., keeping one's job), the motivation for such avoidance behaviors may become internalized. Thereby, as the subordinate confronts fears of negative evaluation or punishment, internal states of tension and anxiety may become associated with task performance and the subordinate's sense of self-worth. Even when the leader is not present, the subordinate is aware of how the leader would like him or her to perform. This leads the subordinate to focus on relieving the internal pressures related to poor task performance. As a result, the internalization fails to become integrated, and the introjected control over creative behavior redirects the subordinate's attention from creativity to overcoming poor task performance fears.

In turn, whether the coercion generated by a leader is external or introjected, the subordinate's motivation to be creative will be controlled. Wanting to avoid the unpleasant stimuli (external or internal) the subordinate's actions become intentional and are non-self-determined. Such motivation will undermine intrinsic motivation and prevent integration. Thus, it was proposed that leader coercive power used to promote subordinate creativity is: a) negatively related to subordinate intrinsic and integrated motivation to be creative, and b) positively related to both controlled motivators (i.e., external and introjected motivation to be creative). A leader who champions creativity, and possess coercive power, can be expected to utilize this power in an effort to impact subordinate motivation to be creative. In doing so s/he creates, and reinforces, external and internally controlling motivators. Consequently, the leader adversely affects the subordinate's intrinsic motivation because the coercion redirects attention away from the

heuristic aspects of the task toward technical rule-bound aspects that ensure coercion avoidance. Coercion avoidance becomes an end for which creativity engagement is the means.

Hypothesis 16. Use of leader coercive power to promote creativity is negatively related to subordinate self-determined motivation to be creativity.

Hypothesis 17. Use of leader coercive power to promote creativity is positively related to subordinate controlled motivation to be creative.

CHAPTER III

METHODS

Sample

Industry Selection

The data for this research were collected from within the Charlotte Mecklenburg School System (CMS), in Charlotte, North Carolina. Sampling from a single service industry (here, primary and secondary education) was elected because it enhanced the potential to generalize the results from one organization within that industry to another organization within the same industry. Creative products and outputs tend to differ radically across industries (e.g., computers vs. ceramics). Therefore, organizations requiring creativity to meet industry specific demands tend to compare themselves to others within the same industry group. Thus, the criteria set for teacher creativity within the CMS is likely to be similar to that established by other public school systems.

Also, a study from within a single school system allowed teacher creativity to be representatively sampled from schools in different geographic regions of Mecklenburg County. In doing so, it further increased the potential to generalize the study's results to

other public education environments. This is because the CMS encompasses large and small schools that are either inter-city or urban. Thus, the interpretation of the results should be expandable to diverse public education environments.

Population

One hundred sixty-two teachers (123 women, 29 men, 10 gender not reported, mean age = 40 years) and their respective principals (12 women, 8 men, mean age = 48 years) from 20 schools within the Charlotte Mecklenburg School System volunteered to participate. The final population set used for data analyses consisted of 132 teachers (18 males, 109 females, 5 gender not reported, mean age = 40), and 18 principals (7 males, 11 females, mean age = 48). Tables 2 and 3 provide comparative descriptive statistics for principal and teacher gender and age. Additional demographic data is presented in Tables 4 (teacher) and 5 (principal).

Materials

Dependent variable

Subordinate creativity was measured using the Employee Creativity Questionnaire (ECQ) (Appendix F). The ECQ was developed for the present study. It consisted primarily of a multiple behavior measure based on Besemer and her colleagues' (Besemer & O'Quin, 1987; Besemer & Treffinger, 1981) research on creative product analysis. Besemer and her colleagues have sought a common vocabulary with which to describe creative products. Resulting from a series of four studies, Besemer and O'Quin (1987) derived at a list of 47 adjectives or adjective-phrases that reliably differentiate product creativity across different products and populations. Besemer and

O'Quin's work was adapted for use in this study because it emphasizes the need to measure creative performance outcomes, not creative processes or personality issues.

From Besemer and O'Quin's list 38 potential items were selected. Items not selected from Besemer and O'Quin's work were evaluated to be too vague or inappropriate for the intended study's context. For example, how would one describe the creativity of an employee as "organic"? The 38 adjectives selected were then paired with 38 antonyms, or adjectives thought to describe commonplace or non-creative behavior. This allowed for the generation of 38 bipolar adjective word pairs designed to describe the work and products of creative employees. The word pairs were separated by a five-point scale in which 1 accompanied the non-creative adjectives and 5 accompanied the creative adjectives.

A colleague knowledgeable of the creativity literature and research then evaluated the 38 items. The reviewer evaluated a) the compatibility of the word pairs, b) the word pairs' ability to capture the essence of creative and non-creative work performance, and c) the word pairs' appropriateness for use in a subjective measure of subordinate creativity. Feedback resulted in the changed wording of three of the non-creative descriptors and the final selection of 15 word pairs. The 15 items were thought by the reviewer and the present study's researcher to be the ones most capable of assessing subordinate creative performance from a supervisor's perspective. These items were then submitted to a professor of Art at Oklahoma State University who concurred that the items would be effective in evaluating employee creativity. A professor of Art was asked to review the instrument simply because his perspective would be fresh and

different from the initial reviewer who was from within the Business College at Oklahoma State University.

When administered, supervisors were asked to select a point on each adjective word pair continuum that best described the performance of the subordinate being evaluated. In turn, these 15 items were averaged to produce a single employee creativity score. A low score (e.g., 1.5) was interpreted as an indication of low employee creativity and a high score (e.g., 4.8) as high employee creativity. In turn, this variable was utilized during data analyses as a continuous variable.

Independent Variables

Leader social power. Leader social power was as assessed by Hinkin and Schriesheim's (1989) measures of French and Raven's (1959) five power bases (Appendix E). The instrument utilizes five scales, one for each social power base. Briefly, these scales contain four items each. The five scales have demonstrated content validity, discriminant validity, factorial uni-dimensionality, internal consistency reliability, and concurrent validity (Hinkin & Schriesheim, 1990; Littlepage, Van Hein, Cohen, & Janiec, 1993). Each of the 20 items was presented along with a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). A total score for each of the five power bases (expert, legitimate, referent, reward, and coercive) was obtained by adding scores on each of the four items for each scale. The average score for each power scale was then used for data analyses.

Subordinate attitude towards creativity at work. Subordinate attitude towards creativity was measured using a 10-item questionnaire (Appendix E). The questions used were adapted from Ettlie and O'Keefe's (1982) innovation attitude scale. These

questions were selected because they had the highest item-total correlation on a 20-item scale (ranging between .51 and .61) and were evaluated to be appropriate for the present study. The researcher and a colleague familiar with the creativity and attitude literatures made the evaluation of appropriateness. Each of the 10 items was presented along with a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The average subordinate attitude score was calculated and used for analytic purposes.

Technical support. Technical support was measured by asking subordinates to indicate how strongly they agreed or disagreed with four statements (Appendix E). The statements, written for this study, address the abundance of technical support and three forms of technical support, (knowledge, procedures, and skill), made available to subordinates by the supervisor for the purpose of supporting the employees' work. Each of the 4 items was presented along with a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Scores on all four items were added together and the average score was used for data analyses.

Leader autonomy-support. Leader autonomy-support was measured by an adapted 15-item leader autonomy-support instrument provided by Edward Deci (E. L. Deci, personal communication, September, 1996) (Appendix E). The measure asked subordinates to indicate how strongly they agreed or disagreed with 15 statements addressing the abundance of autonomy-support made available to her/him by the supervisor. Each of the 15 items was presented along with a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The averaged total score for leader autonomy-support was utilized for data analyses.

Creativity Motivation Inventory development. Employee motivation to be creative was measured using the Creativity Motivation Inventory (CMI). The CMI was developed for use in the present study. It was designed to assess individual differences in self-determined and controlled motivational orientations toward performing creativity at work. Specifically the inventory was designed to capture the finer elements of self-determined (internal and integrated) and controlled (introjected and external) motivation.

To begin, a list of 46 reasons for creative behavior was generated. These reasons were then grouped into 4 categories: external, introjected, integrated, and intrinsic (Table 6 provides a sample of reasons and their assignments). The grouping assignments were based upon pre-conceptualizations of the constructs and examples of similar successful items used by Ryan and Connell (1989). Ryan and Connell (1989) used similar items to study children's self-reported reasons for academic achievement and pro-social behavior. The grouping assignments resulted in 12 external, 12 introjected, 12 integrated, and 10 intrinsic items. Each reason was then assigned to one of three why questions: (a) Why might you work on a project from work during your free time or after work hours? (b) Why are you motivated to seek novel approaches to your work? and (c) Why are you creative at work? The number of reasons from each of the four categories was balanced across the why questions. Each reason was accompanied by a four-point scale of, "never or almost never true of you," "sometimes true of you," "often true of you," and "always or almost always true of you." The responses were scored 1,2,3, and 4, respectively. A four point scale was selected so as to emulate a scale successfully used by Amabile and her colleagues (Amabile, 1987, Amabile et al., 1994) in their motivation inventory development research.

The pilot version of the CMI was administered to 27 Business Administration undergraduate students. Initial exploratory analysis was conducted using principle components factor analysis, with varimax rotation. This analysis resulted in 11 factors with eigen-values greater than one. However, only the first 2 had consistent item groupings with loadings equal to or greater than .40. A second analysis was run using the 32 items retained from the first 2 factors. The number of factors sought was limited to two in an effort to extract the primary motivational constructs, self-determined and controlled. All 32 items did cluster on their pre-conceptualized factors with loading greater than .40. A third series of independent analyses was run on both primary factors to determine whether the sub-factors intrinsic, integrated, introjected and external, would emerge when the number of factors sought was limited to two. Clear distinctions between intrinsic, integrated, external and introjected were found. Four items had cross loading of .40 or greater. However, given the sample was small, this was accepted and the items were retained.[2]

For the present version of the CMI (Appendix E), seven new reasons (2 external, 4 introjected, and 1 intrinsic) were written and added to the 32 retained (9 external, 7 introjected, 5 intrinsic, and 11 integrated) items. The new reasons were added to balance the total number of items for each factor. It was hoped, once the data was collected, a

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2 Software capable of calculating Cronbach's alpha was not available to me when these analyses were performed.

final set of 20 items, with 5 items per factor, would factor out for final data analysis purposes.

Demographic Information

Background information gathered from supervisory respondents (Appendix F) included the following: work function; title; gender; number of subordinates; budget or monies that respondent has authority over; years worked; years with present organization (tenure); organization size (number of employees); age; education; and accomplishments such as publications, performance awards, and other distinctions. Demographic information gathered from subordinate respondents (Appendix E) included the above plus the number of people in the immediate work group. The item "budget or monies that respondent has authority over" was eliminated from the subordinate demographic survey.

Procedure

Upon approval by the Charlotte Mecklenburg School System's Department of Instructional Accountability the study was initiated in three phases. During phase one, solicitation letters requesting commitment to participate and permission to survey teachers were mailed to the 137 principals within the school system (Appendix C). One week following this mailing, reminders to please reply to the participation request were sent. Sixty-nine principals responded via self-addressed postage-paid postcards provided to them along with the solicitation letter. Of the 69 responses, 20 principals, representing 14 elementary, 3 middle, and 3 high schools, agreed to commit to the study. These responses to the participation request letter resulted in a 50.4% total response rate by the principals, with 14.6% of the schools within the school system committing to the

study.

Phase two, subordinate data collection, began one month following principal consent to participate. Teacher survey packets were mailed to the 20 principals for distribution to their full-time teaching staff. The teacher survey packets contained: (a) an introductory letter stating the purpose of the research; a statement ensuring participant confidentiality, and instructions for completing and returning the survey (Appendix D); (b) a personal background information sheet; (c) a leader social power inventory (Hinkin & Schriesheim, 1989), (d) a subordinate attitude towards creativity inventory (Ettlie & O'Keefe, 1982); (e) a technical support questionnaire; (f) a leader autonomy-support questionnaire (E. L. Deci, personal communication, September, 1996); (g) a Creativity Motivation Inventory; and h) a postage-paid business reply envelope addressed to Oklahoma State University's Psychology Department. Teacher surveys were projected to require approximate 20 minutes to complete.

Of the 1045 surveys provided, 927 were distributed to teachers by their respective principals or school office staff. One principal did not distribute the teacher surveys, thereby withdrawing the school from further participation in the study. Teachers were instructed to complete the survey during school hours and to return the completed materials in the provided envelope within 3 weeks of receipt. These procedures encouraged a means for controlling response environment variability and confidentiality. Confidentiality procedures will be discussed later. A total of 176 teachers responded by returning completed surveys. There were 14 unusable surveys due to the respondents' failure to comply with survey instructions or failure to complete

all of the survey materials. A 17.5% teacher response rate was obtained (Table 7 provides teacher response rates according to school level taught).

Phase three of the study began two weeks following receipt of the last teacher survey. Each principal was mailed a Principal Survey packet containing: a) a letter expressing gratitude for the principal's continued support in the study, instructions for completing and returning the survey materials, and a statement ensuring response confidentiality (Appendix D); (b) a personal background information sheet; and c) an Employee Creativity Questionnaire for each teacher under her/his direction participating in the study. For schools with more than 13 teachers volunteering to participate, a maximum of 12 teachers was randomly selected for evaluation by their principal. The maximum number of teachers evaluated was restricted to 12 in an effort to equalize the participation requirements for all of the principals. Randomization was performed by selecting every other teacher survey from the respective school. This procedure was used to reduce selection bias.

The time needed to complete the assigned principal survey packet was projected to require a maximum of 20 minutes for principals who evaluated the maximum number of teachers, 12. Principals evaluating fewer than 12 teachers were projected to need less than 20 minutes to complete their survey packets. Principals were allotted three weeks to complete and return the survey materials. A reminder letter was mailed to 7 of the 19 principals once the completion date had expired. One principal failed to complete the assigned survey packet, thereby disqualifying the school from further inclusion in the study.

The final number of principals who participated in the study was 18. The number of teachers evaluated by principals was 132. The survey data provided by the 132 teachers were then paired with the respective principal responses to test the leader social power-subordinate creativity relationships proposed by the present model.

Confidentiality. Participant confidentiality was of the utmost importance. Subordinate surveys were alpha-numerically coded in such a way that only the researcher could identify and pair the data with the respondent and the supervisor evaluated. Participating teachers completed a tear-away form that was separated from the survey upon its return to the researcher. A record pairing the participant and the numbered survey was maintained for data processing purposes only. Thereby, the record identifying survey respondents was maintained in a separate file from the survey records. Principals did not receive individualized or compiled information regarding how teachers participating in the study evaluated them. Only the cumulative results of the study will be shared following committee approval of this final document.

The names of the teachers evaluated by principals did not appear on the principal survey documents. Rather each teacher's respective Employee Creativity Questionnaire was alpha-numerically coded. Each principal received a key listing and matching only those teachers s/he was to evaluate to the coded survey materials. The keys were returned with the completed surveys to the researcher in order to protect the confidentiality of the principals' responses and to prevent any organizational staff from learning which teachers were evaluated.

Additionally, all surveys were returned directly to the researcher via self-addressed-stamped envelopes. This prevented the handling or viewing of the completed

surveys by anyone other than the participants and the researcher. These procedures were utilized to protect the integrity and confidentiality of all participants' responses. At no time were individual findings or responses accessible to any staff or administrative personnel within the participating school system. Nor were they written, published, or released in any other form. Only the cumulative results were reported.

Analyses

Hypotheses Testing

Non-moderated relationships. Four multiple regression analyses were used to test the hypothesized non-moderated relationships between each of the subordinate variables (technical support, self-determined motivation, controlled motivation, subordinate attitude toward creativity at work) and the five leader power bases (expert, legitimate, referent, reward, and coercive). In this approach a subordinate variable (e.g., technical support) was regressed on all five power bases (see Table 8 for an example model). By regressing the subject variable on all five power bases two objectives were met. First, an economy of procedures was created. The number of models needed to test the individual hypotheses linking the power bases to the specific subject variable was reduced to one model. Second, a more meaningful view of the specified leader power-subordinate variable relationship was afforded. By including all five power bases in the regression models, it was possible to evaluate the value of the hypothesized relationships in the presence of the other power bases.

Moderated relationships. According to Baron and Kenny (1986), a moderator is a qualitative (e.g., gender, class) or quantitative (e.g., level of autonomy-support) variable that affects the direction or strength of the relationship between an independent

variable and a dependent variable, or the relationship between a predictor variable and a dependent or criterion variable. Two moderated multiple regression analyses were conducted to test whether autonomy-support moderated the hypothesized relationships (a) between leader legitimate power and subordinate motivation and (b) between leader referent power and subordinate motivation. The moderated multiple regressions involved a hierarchical analysis approach. First, both self-determined and controlled motivations were independently regressed on the five power bases and the hypothesized moderator, autonomy-support (see Tables 15 and 16, Step 1). Autonomy-support was included in this first step because it is considered to be at the same level as the other independent variables in regards to its role as a causal variable antecedent or exogenous to certain criterion effects (Baron & Kenny, 1986). Next, the two interaction terms, legitimate power x autonomy-support and referent power x autonomy-support, were added to the regression equations (Cohen & Cohen, 1983) (see Tables 15 and 16, Step 2). The regression coefficients of these interaction terms were then evaluated for significance. According to Baron and Kenny (1986) the moderation hypotheses would be supported if the interaction terms were significant.

Test of the Model.

The hypotheses testing procedures assessed the validity of hypothesized individual relationships specified by the model presented in this study. As a test of the overall model a reduced form equations analysis (for sets) (Cohen & Cohen, 1983) was adopted. The following consideration was made when selecting this procedure.

The presented model suggests a mediation of leader social power bases by the subordinate variables. The reduced form equations analysis (for sets) technique allows

for the assessment of causality or mediational effects in partially specified causal models, such as the model presented here. This technique provides for hierarchical analysis of sets of variables such as the antecedent power bases, mediating variables set (subordinate variables), and the outcome variable (subordinate creativity). This obviates the need for specifying all relationships between an individual antecedent variable across the mediational set. In highlighting this situation Cohen and Cohen (1983) note, "It is all too frequently the case that our efforts to construct a plausible causal model fall short of complete specification of all relationships among variables. One may be able to assert with some assurance that certain variables (set A) are causally prior to other variables (set B) which are in turn causally prior to yet other variables (set C)," (p. 361). They outline a technique involving hierarchical analysis of sets to assess the causality specified at the level of sets of variables. Within the present study, however, there was only one outcome variable, thereby reducing set C to one variable and necessitating only one iteration of the following procedure.

The role of subordinate variables as a potential mediator between leader social power and subordinate creativity was assessed in the following manner (Table 9). In Step 1, subordinate creativity was regressed on the antecedent set (leader expert power, legitimate power, referent power, reward power, and coercive power). The regression coefficients for each of the antecedent set of variables here indicates its "total effect" on subordinate creativity (the dependent variable) (Cohen & Cohen, 1983).

In Step 2, subordinate creativity was regressed on the mediating variable set (technical support, self-determined motivation, controlled motivation, and subordinate attitude towards creativity). The regression coefficient for each of the mediating set

variables here indicates the total effect on subordinate creativity. This step was thereby utilized to test Hypotheses 2, 6, 7, and 12, which specify the specific relationships between each of the mediating set variables and subordinate creativity.

In Step 3, the mediating variable set was added to the regression equation from Step 1. However, in this step only those antecedent and mediating variables from Steps 1 and 2 that related to subordinate creativity at the .10 or greater significance level (Cohen & Cohen, 1983; Baron & Kenny, 1986), were included. The rationale for dropping the variables that did not meet the .10 cut-off for entry into the equation is as follows. First, a requirement of mediation is that the mediator variable(s) must be directly and significantly related to the dependent variable (Baron & Kenny, 1986). Second, the mediation test is logically valid for only those antecedent variables that have a significant total effect on the dependent variable, subordinate creativity. That is, the antecedent variables have some effect that can be potentially mediated. Thus, the resulting regression coefficient for each of the antecedent set variables in Step 3 indicates the variable's "direct effect" on subordinate creativity (Cohen & Cohen, 1983).

The reduced form equations analysis (for sets) is a test of mediation and the results reveal the nature of the mediation effect. The analysis provides the total effects of the antecedent variables on the dependent variable. These are then used in the following manner to assess the presence of mediation. For the antecedent variables, the total effect (Step 1 regression coefficients) and the "direct effect" (Step 3 regression coefficients) patterns can fall into three categories. These steps are summarized in Table 9.

Category 1. For the first category of antecedent variables, the total effect (Step 1 regression coefficients) will be significant and compared to the direct effect (Step 3 regression coefficients). The direct effect indicates the effect that remains after partialing out the effects translated through the mediator set. If the direct effect coefficients are non-significant, the mediation is complete in that the antecedent variables in this category do not have a direct effect on subordinate creativity. Their entire effect on subordinate creativity is translated through the mediator set.

Category 2. For the second category of antecedent variables, the total effect in Step 1 will be significant, as will be the direct effect in Step 3. The magnitude of direct effect in Step 2, however, will be less than the magnitude of total effect in Step 1. In this case, the antecedent variable's effect on subordinate creativity is partially mediated by the mediating variable set.

Category 3. The third category will consist of those antecedent variables whose effect on subordinate creativity remains unchanged between Step 1 and Step 3. In this case, there is an absence of mediation and the antecedent variable have only a direct unmediated effect on subordinate creativity.

The extent of mediation by the subordinate variables set in Step 3 was judged from the overall pattern of mediating effects observed. This provided a judgmental basis for the assessment of the mediating role of the set of subordinate variables.

It is relevant to consider the extent of information loss incurred in using the reduced form equations analysis technique with hierarchical sets as compared to causal analysis (involving path analysis or LISREL techniques) through a fully specified model. Cohen and Cohen (1983) indicate that because variables within sets are treated as

exogenous with regard to each other, an underestimation (or overestimation if there is suppression) of the indirect effect of some variables that actually operate via other variables within the same set is possible. However, all other estimates are equivalent to those from a fully specified model.

Further, Cohen and Cohen (1983) note that, "In sum, by attention to the regression coefficients produced in a hierarchical analysis one may gain most of the information usually provided by a fully specified model. Because the necessity for specifying within-set relationships is avoided, this procedure may be feasible for many more problems than those that meet the full requirement of specification and identification of effects in causal analysis," (p. 366). This suggests that the approach is comparable to the other approaches to causal analysis in terms of information yield.

Power analysis

A power analysis (Cohen & Cohen, 1983) with 10 independent variables indicated a minimum required sample size of 103 to have statistical power = .80, assuming $R^2 = .15$ and alpha equaled .05. Based on Cohen and Cohen (1983), $R^2 = .15$ is reasonable for exploratory, behavioral or social science research involving 5 to 10 independent variables. It seeks a middle of the road, or medium, population sample size effect.

Methods Section Summary

Utilizing survey materials, a field study of how leader social power impacts subordinate creativity was conducted. The above section provided the rationale for the sample selected and introduced the study's population. It also provided a brief description of the survey materials and procedures used for data collection. Finally, the

analyses selected for testing the study's hypotheses and overall model were outlined. The following section will present the results of the data analyses performed and provides an indication of acceptance or rejection of each hypothesis.

CHAPTER IV

RESULTS

Descriptive Statistics

General descriptive statistics and reliability coefficients for the dependant variable and all of the independent variables are presented in Table 10. All of the variable measurements, with the exception of subordinate motivation, were based on a 5-point scale with the higher score indicating more of the target variable. Examination of the means in Table 10 shows that primary and secondary principals were generally perceived by their respective teachers as possessing: (a) moderate expert ($\underline{M}$ = 3.77, $\underline{SD}$ = .97) and coercive power ($\underline{M}$ = 3.27, $\underline{SD}$ = 1.15), (b) relatively high legitimate and referent power ($\underline{M}$ = 4.26, $\underline{SD}$ = .60, and 4.25, $\underline{SD}$ = .92 respectively), and c) relatively low reward power ($\underline{M}$ = 2.38, $\underline{SD}$ = .80). Among the mediating variables, teachers reported receipt of moderate technical ($\underline{M}$ = 3.68, $\underline{SD}$ = .99) and autonomy support ($\underline{M}$ = 3.95, $\underline{SD}$ = .95). Teacher reported self-determined motivation exceeded controlled motivation by 1.35 points. The motivation measures were based on a 4-point scale. Additionally, teacher attitudes towards performing creatively at work were generally favorable ($\underline{M}$ = 3.85, $\underline{SD}$ = .55). Finally, the creativity of the teachers as reported by their principals was slightly above average ($\underline{M}$ = 3.25, $\underline{SD}$ = .79, on a scale of 1 to 5, with 3 indicating average).

Instrument Evaluation

The Creativity Motivation Inventory

Common factor analysis, with oblique rotation, was used to select the items that were included in the measure of employee motivation to be creative. Oblique rotation was performed because it does not constrain factors to be uncorrelated, as does varimax (orthogonal) rotations.

The initial analysis resulted in 4 factors with eigen-values greater than one; however, only the first two reflected cohesive groupings of items loading at .40 or greater. These two factors reflected self-determined and controlled motivational constructs. The remaining factors contained sporadic groupings with multiple items cross loading on the self-determined and controlled factors. The removal of the cross loading items, however, failed to improve the cohesiveness of Factors 1 and 2. Rather, the items loading on Factors 1 and 2 rotated in and out, depending on which other items had been dropped. Thereby, in an effort to find a consistent grouping of the self-determined and controlled motivational items, each why statement and its respective reasons were factor analyzed independently. Each of the three why statements represented different questions of why one would behave a certain way at work. The questions were worded to reflect behaviors related to successful creativity. The responses following each statement represented self-determined and controlled reasons for the behavior. The results of these analyses indicated that the statement, "Why are you creative at work?" produced the most distinctive 2 factors identifiable as self-determined and controlled motivation. Each factor contained 8 items representative of their pre-categorization. Factor 1 contained 3 intrinsic and 5 integrated reasons for

performing creatively at work. Factor 2 consisted of 3 introjected and 5 external reasons for performing creatively at work.

Further independent analysis of the self-determined and controlled factors failed to produce the desired subfactors, intrinsic and integrated motivation, and introjected and extrinsic. Rather the integrity of the primary factors was retained. Therefore, it was necessary to select items measuring only the primary factors. (The ramifications of this change to hypotheses testing are addressed in the following paragraph.) The items selected for calculating the subordinate self-determined and controlled motivation scales were: (a) self-determined motivation, 52 A, C, E, G, I, L, O, P; and (b) controlled motivation, 52 D, F, H, J, K, M, N, T. Cronbach's alpha coefficients for the final self-determined and controlled motivation scales were .92 and .81, respectively.

Because the CMI only addressed the primary constructs subordinate self-determined and controlled motivation, it was not possible to test hypotheses 4a through 5b, or 9 through 10b. The reason why they could not be tested is that these hypotheses addressed specific relationships between the indicated leader power base and a subgroup motivational construct (intrinsic, integrated, introjected, or external motivation). Thereby, it was possible to examine only the relationships between the designated power base and the primary motivational constructs, self-determined and controlled motivations. For this reason the alternate hypotheses 4c, 4d, 5c, 5d, 9c, 10c, and 10d, were developed. A comparison of the original and the alternate hypotheses can be made by comparing Tables 11 and 12.

Reliability analysis

The internal consistency reliabilities of all scales, with the exception of reward power (0.63), were equal to or above 0.82, an acceptable level for exploratory research (Nunnally, 1978). Note the reliability for the reward power scale is low. However, because public school principals are limited in their ability to monetarily reward teachers, and because the scale used did not address non-monetary rewards, the reward power of the principals is probably understated. In that light, all conclusions based on the reward power scale should be viewed with caution.

On the attitude scale item 30 failed to load above the .40 cutoff when a principal components analysis was performed. Removal of this item increased coefficient alpha from .80 to .82. Therefore this item was not included in the final attitude scale. On the dependent variable instrument, the Employee Creativity Questionnaire, item 7 (traditional vs. revolutionary) did not correlate well with the other scale items. Reconsideration of this item suggested it may have been difficult for respondents to interpret or was not appropriate for the present population. Deletion of this item increased the reliability coefficient to .97.

Cronbach's alphas for the power bases were, expert power .89, legitimate power .86, referent power .94, reward power .63, and coercive power .91. The reliability coefficient for technical support was .91. Finally, the autonomy-support scale yielded an alpha reliability coefficient of .99.

Hypotheses Testing

Tables 11 and 12 summarize the hypotheses and the scales used to test them. Tables 13-17 present the regression models used to test the study's hypotheses. Table 13

was used to test Hypothesis 1. Table 14 was used to test Hypotheses 2, 6, 7, and 12. Table 15 was used to test Hypotheses 3, 4d, 5c, 8, 9b, 10d, 13, and 16. Table 16 was used to test Hypotheses 3, 4c, 5d, 8, 10c, 14, and 17. Table 17 was used to test Hypotheses 11 and 15. Unless otherwise noted, an alpha level of .05 was used for all statistical tests. Also, each model tested utilized a sample size of 130. The reduction in sample size from 132 to 130 was due to the removal of outliers who had studentized residuals of –3 or greater.

Hypothesis 1 stated: Use of a leader's expert power to promote creativity will be positively related to the extent to which the subordinate receives technical support. From the multiple regression presented in Table 13, it was determined expert power had a significant positive relationship ($\underline{B} = .75$, $\underline{p} < .001$) with technical support. Support for this hypothesis was found.

Hypothesis 2 stated: The availability of technical support will be positively related to subordinate creativity. To test this hypothesis the technical support regression coefficient from Step 2 of the reduced equation (for sets) analysis was examined (Table 14). A significant relationship between technical support and subordinate creativity was found ($\underline{B} = .17$, $\underline{p} < .05$). Therefore, hypothesis 2 was supported.

Hypothesis 3 stated: The leader legitimate power and subordinate motivation relationship will be moderated by the subordinate's perceived autonomy-supportiveness of the leader. To test whether autonomy-support moderated (a) the leader legitimate power to subordinate self-determined motivation or (b) the legitimate power to subordinate controlled motivation relationship, separate moderated multiple regressions were conducted (Tables 15 and 16, respectively).

The results of the moderated multiple regression for self-determined motivation (Table 15) indicate that neither the interaction term legitimate power x autonomy-support ($\underline{B}$ = .009, $\underline{p}$ > .5), nor the model, $\underline{F}$ = (8, 121) = 1.57, $\underline{p}$ > .10, was significant. Thus, it was concluded that autonomy-support did not moderate the legitimate power to self-determined motivation relationship. Next, the moderated multiple regression for subordinate controlled motivation was reviewed (Table 16). The interaction term legitimate power x autonomy-support ($\underline{B}$ = -.06, $\underline{p}$ > .10) was not significant. This finding indicates autonomy-support did not moderate the legitimate power to controlled motivation relationship. In addition, the model was not significant, $\underline{F}$ = (8, 121) = 1.14, $\underline{p}$ > .10. Based on these two analyses, Hypothesis 3 was rejected.

Due to the limitations of the subordinate motivation scales, the following alternate hypotheses for 4a, 4b, 5a, and 5b, regarding the relationships between leader legitimate power and subordinate motivation, were made. These hypotheses tested the nature of the legitimate power x autonomy-support interaction proposed by Hypothesis 3.

Hypothesis 4c: When a leader is perceived as controlling, use of leader legitimate power to promote creativity will be positively related to subordinate controlled motivation to be creative.

Hypothesis 4d: When a leader is perceived as controlling, use of leader legitimate power to promote creativity will be negatively related to subordinate self-determined motivation to be creative.

Hypothesis 5c: When a leader is perceived as being autonomous, use of leader legitimate power to promote creativity will be neither negatively nor positively related to subordinate self-determined motivation to be creative.

Hypothesis 5d: When a leader is perceived as being autonomous, use of leader legitimate power to promote creativity will be positively related to subordinate controlled motivation to be creative.

To test these hypotheses a significant interaction between principal legitimate power and autonomy-support, when regressed on the respective motivational orientation, was necessary. However, the non-significant interactions tested in Hypothesis 3 mean that these follow-up hypotheses were also not supported.

Hypotheses 6 and 7 addressed the relationships between subordinate motivation and the dependent variable subordinate creativity. Hypothesis 6 stated, a subordinate's self-determined motivation to be creative will be positively related to her/his creativity. When subordinate creativity was regressed on the four subject variables (Table 14, Step 2) the regression coefficient for self-determined motivation ($\underline{B} = .20$, $\underline{p} = .06$) was only moderately significant. Thus, hypothesis 6 was rejected. However, because the $\underline{p}$-value of the regression coefficient was less than .10, the significance of variable was great enough to qualify self-determined motivation for inclusion in the test of the overall model (Table 14, Step 3).

Hypothesis 7 stated, a subordinate's controlled motivation to be creative will be negatively related to her/his creativity. Controlled motivation was found to be negatively related to subordinate creativity, however this relationship was not significant ($\underline{B} = -.12$, $\underline{p} < .20$). Thereby, hypothesis 7 was rejected.

Hypothesis 8 stated: The leader referent power-subordinate motivation to be creative relationship will be moderated by the subordinate's perceptions of the leader's autonomy-support. To test the relationships proposed in Hypothesis 8, the moderated multiple regression models presented in Tables 15 and 16 were utilized. First, the interaction term testing for a moderated relationship between leader referent power and subordinate self-determined motivation was considered (Table 15). Step 2 of the moderated multiple regression demonstrated that the interaction term, referent power x autonomy-support ($\underline{B} = .24$, $\underline{p} > .10$), $\underline{F}(8, 121) = 1.57$, $\underline{p} > .10$, was not significant.

Second, the moderated multiple regression for controlled motivation (Table 16) was reviewed. The data from Step 2 of this model indicate the referent power x autonomy-support interaction ($\underline{B} = .16$, $\underline{p} > .10$) was not significant. Thus, the results suggest the level of autonomy-support did not moderate the referent power to subordinate controlled motivation relationship. Because a significant leader referent power x autonomy-support interaction was not found in either of the two moderated multiple regression models, Hypothesis 8 was rejected.

Due to the limitations of the subordinate motivation scales, the following alternate hypotheses for 9, 10a, and 10b, regarding the relationships between leader referent power and subordinate motivation, were made. These hypotheses tested the nature of the referent power x autonomy-support interaction proposed by Hypothesis 8.

> Hypothesis 9b: When a leader is perceived as being autonomous, use of leader referent power to promote creativity will be positively related to self-determined motivation.

Hypothesis 10c: When a leader was perceived as controlling, use of leader referent power will be positively related to subordinate controlled motivation to be creative.

Hypothesis 10d: When a leader is perceived as controlling, use of leader referent power will be negatively related to subordinate self-determined motivation to be creative.

To test these hypotheses a significant interaction between leader referent power and autonomy-support, when regressed on the respective motivational orientation, was necessary. Because the interaction term tested in Hypothesis 8 was not significant support for these hypotheses was not possible.

Hypothesis 11 stated: Use of leader referent power to promote creativity will be positively related to subordinate attitude towards their own creativity. When the relationship between leader referent power and subordinate attitudes was evaluated (Table 17) a non-significant positive relationship was found (.132, $p > .10$). Thus, Hypothesis 11 was rejected.

A subordinate attitude towards performing creatively at work was proposed to be positively related to subordinate creativity by Hypothesis 12. Subordinate attitude towards creativity at work was found to be positively related to subordinate creativity ($B = .14$) (Table 14). This relationship, however, was not significant ($p > .10$). Thus, Hypothesis 12 was rejected.

Hypothesis 13 stated: The use of leader reward power to promote creativity will be negatively related to a subordinate's self-determined motivation to be creative. The regression coefficient between leader reward power and subordinate self-determined

motivation in Table 15 was ($\underline{B}$ =. 10, $\underline{p} > .10$). The relationship was not significant thus, support for this hypothesis was not found. However, these results, and those of Hypothesis 14 and 15, must be viewed with caution, given the low reliability of the reward power scale.

Hypothesis 14 stated: Use of leader reward power to promote creativity will be positively related to a subordinate's controlled motivation to be creative. Reward power was significantly related to subordinate controlled motivation to be creative ($\underline{B}$ = .19, $\underline{p} <$ .05) (Table 16). This finding led to the support of Hypothesis 14.

Hypothesis 15 proposed a leader's use of reward power would be positively related to a subordinate's attitude toward his/her own creativity at work. The data from Table 17 indicate reward power was positively related to subordinate attitudes towards creativity at work ($\underline{B}$ = .21, $\underline{p} < .05$). Thus, Hypothesis 15 was supported.

Hypothesis 16 stated: Use of leader coercive power to promote creativity will be negatively related to subordinate self-determined motivation to be creativity. From Table 15 it can be shown that coercive power exhibited no significant relationship with subordinate self-determined motivation ($\underline{B}$ = -.13, $\underline{p} > .10$). This hypothesis was not supported.

Hypothesis 17 stated: Use of leader coercive power to promote creativity will be positively related to subordinate controlled motivation to be creative. The regression coefficient between leader coercive power and subordinate controlled motivation from Table 16 was not significant ($\underline{B}$ = -.06, $\underline{p} > .10$). Thus, Hypothesis 17 was not supported.

Test of the Model

A test of the overall model used a reduced form equations analysis. The results of this procedure are presented in Table 14.

In Step 1 of the analysis, subordinate creativity was regressed on the antecedent set (leader expert power, legitimate power, referent power, reward power, and coercive power). This model was significant, $\underline{F}$ (5, 124) = 5.46, $\underline{p} < .001$, and had an $\underline{R^2}$ value of .18. Within the model the regression coefficients for expert power ($\underline{B}$ = -.259, $\underline{p} < .05$), legitimate power ($\underline{B}$ = .246, $\underline{p}$ = <.01), and referent power ($\underline{B}$ = .317, $\underline{p} < .01$), were significant. Because these coefficients were significant, the relationship these antecedent variables have with subordinate creativity may be mediated. The model regression coefficients for reward power ($\underline{B}$ = .09, $\underline{p} > .10$) and coercive power ($\underline{B}$ = -.07, $\underline{p} > .10$) were not significant. Because these coefficients were not significant the relationships reward power and coercive power have with subordinate creativity are not mediated.

In Step 2 of the analysis, subordinate creativity was regressed on the mediation set (technical support, self-determined motivation, controlled motivation, and subordinate attitude towards creativity at work). This model was significant, $\underline{F}$ (4, 125) = 4.06, $\underline{p} < .01$, $\underline{R^2}$ = .12. Within the model, the regression coefficient for technical support ($\underline{B}$ = .17, $\underline{p} < .05$) had a significant total effect on subordinate creativity. The significance of this coefficient indicates technical support's potential to act as a mediator. The regression coefficient for self-determined motivation was not significant at the .05 level ($\underline{B}$ = .20, $\underline{p}$ = .06). Nonetheless, self-determined motivation did meet the prerequisites to be a potential mediator. Its p-value was less than .10, the cut-off value established for further inclusion in the test for mediation. The model regression

coefficients for controlled motivation ($\underline{B}$ = -.12, $\underline{p}$ > .10) and subordinate attitude towards creativity at work ($\underline{B}$ = .136, $\underline{p}$ > .10) were not significant. Thereby, these two variables were eliminated as potential mediators.

In Step 3, the mediating variables technical support and self-determined motivation were added to the antecedent variables, expert power, legitimate power, and referent power, from Step 1. The antecedent and mediating variables not included in Step 3 did not meet the prerequisites for inclusion in a test of mediation relationships (Baron & Kenny, 1986). The new model remained significant, $\underline{F}$ (5, 124) = 7.02, $\underline{p}$ < .001. The results of this step indicate expert power and referent power were not mediated by the subordinate variable set. The significance levels of expert power and referent power were not reduced. In contrast, legitimate power demonstrated having been partially mediated by the subordinate variable set. The magnitude of its direct effect ($\underline{B}$ = .22, $\underline{p}$ = .05) was less than the magnitude of its total effect ($\underline{B}$ = .26, $\underline{p}$ = .01). The incremental change in the variance explained by the addition of the subordinate variables to the antecedent set was 4%. This increase in $\underline{R}^2$ was significant at the .01 level, $\underline{F}$ (5,119) = 3.20.

Results Section Summary

The above section presented the results for the analytical test of each hypothesis proposed within the present study. Examination of data shows that primary and secondary principals were generally perceived by their respective teachers as possessing: (a) moderate expert and coercive power, (b) relatively high legitimate and referent power, and c) relatively low reward power. Among the subordinate variables, teachers reported receipt of moderate technical and autonomy support. Also, a test of the overall

model introduced by Figure 1 of this document was performed and the results presented. From these analyses it was determined that three of the five social powers (expert, legitimate, and referent) were strongly related to subordinate creativity. Additionally, it was shown that the subordinate variables technical support and self-determined motivation are also related to subordinate creativity. The following section will introduce the rationale for, and implications of, the results outlined here.

CHAPTER V

DISCUSSION

The quality of human life is greatly influenced by the creative contributions of individuals (Albert, 1983, as cited in Isaksen, 1987). Advances in knowledge which improve the health and welfare of society, as well as economic prosperity, are often the results of these creative contributions (West & Farr, 1990). For these reasons occupational psychologists, administrative scientists, and organizational behaviorists are beginning to seek a sound understanding of creativity within the work environment. Researchers have noted that the effective use of creative abilities within an organization may be conditioned by many variables. For example, Amabile and Gryskiewicz (1987) found that the level of access to technical support and resource availability can significantly stimulate or obstruct employee creativity. However, researchers have left relatively unexplored a potential determinant of subordinate creativity--the subordinates' leader and the type of social power s/he uses to promote creative behavior. The purpose of this study was to address this limitation. A field study was conducted testing a model of subordinate creativity within the context of the professional leader-subordinate relationship.

The framework of the model tested incorporated French & Raven's (1959) five social power bases (expert, legitimate, referent, reward, and coercive power), technical support, subordinate motivation, subordinate attitudes towards creativity at work, and the dependent variable, subordinate creativity. The following discussion highlights the study's findings and their implications, plus offers suggestions for future research.

Social Power Bases and Subordinate Creativity

Expert Power

The data indicate the teachers surveyed perceive their principals to be moderately high in expert power. First, a strong relationship between principal expert power and technical support was found. This relationship suggests that as leader expert power increased so did the technical support teachers reportedly received from their principals. The strength of this relationship indicates teachers view their principals to be professionals capable of providing technically relevant advice and skill.

In contrast to the positive relationship between expert power and technical support, expert power was negatively related to a) the subordinate variable, self-determined motivation, and b) the dependent variable, subordinate creativity. The negative relationship between principal expert power and teacher self-determined motivation indicates that as principal expert power increased teacher self-determined motivation decreased. The negative relationship between principal expert power and teacher creativity suggests that as principal expert power increased teacher creativity decreased.

The negative impact of principal expert power on teacher self-determined motivation and subordinate creativity is not too surprising if one considers the possibility

that teachers whose principals had high expert power may defer to their principal's knowledge. That is, when a principal had high expert power, the teachers may have been less inclined, or self-determinedly motivated, to be creative, trusting instead the ideas of their leader. As a result, teachers deferring to their principal's expert power did not seek more creative remedies. This finding is further discussed below.

Reduced subordinate challenge to be creative. Two possible explanations can be offered as to why the teachers might defer to their principal's expert power. First, the availability of expert power may not always be a source of idea-cross fertilizations as previously thought by other researchers (e.g., Aiken & Hage, 1971; Andrew & Farris, 1967). Instead, it may reduce the need to be self-determinedly motivated or creative. Once a leader's expert power is established, a) subordinates may believe that the leader is in a better position to develop appropriate solutions to problems confronting an organization; or, b) the leader may inadvertently volunteer solutions to problems confronting his/her subordinates. As a result, the intellectual challenging of subordinates and the overall need for creativity is reduced.

According to Amabile and her colleagues (Amabile, 1988; Amabile & Gryskiewicz, 1987; Amabile et al., 1996) it is important for individuals to experience a sense of personal challenge when establishing and maintaining both intrinsic motivation (a form of self-determined motivation) and overall creativity. The sense of challenge arises from the intriguing nature of the problem itself and the problem's importance to the organization. Psychological research has shown that the exploration of alternative possibilities and time for that exploration directly correlates with the creativity of task outcomes in laboratory (see Amabile et al., 1996 for a listing of unpublished manuscripts

and presented papers) and field settings (Amabile, 1988; Amabile & Gryskiewicz, 1987).[3] So, what happens if subordinates are not afforded the opportunity to participate in the meaningful search for creative solutions because their leader solves the problems for them? Potentially, the challenge aspect of problem solving is removed.

The subordinates have only to accept the proposed solutions because they are not challenged to generate or offer their own ideas. Over time the subordinates may, in turn, come to expect problems to be resolved by the knowledgeable leader. As a result, the leader's expert power has contributed to the demise of subordinate self-determined motivation and overall subordinate creativity.

Fear of Evaluation. The second possible reason why teachers might defer to principals high in expert power is the fear of evaluation. The principals surveyed in this study, on average, exceeded their teachers in age and level of education attained. They also tended to have been a part of the school system two times longer than the teachers surveyed. With this added experience to their credit, the teachers may be concerned that their ideas will be evaluated to be inappropriate or not good enough for implementation.

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3 This research was primarily concerned with time pressures. Within the studies it was found that excessive workload pressures undermine creativity, especially if the pressures are perceived as imposed external means of control (Amabile, 1993). In contrast, pressures that are perceived as a necessary part of an important, urgent project add to the perception of challenge in the work that positively correlates with self-determined motivation and creativity (Amabile, 1988, Amabile et al., 1996).

There is evidence that evaluation expectation can undermine self-determined motivation and creativity. A number of studies have demonstrated an undermining of intrinsic motivation, a form of self-determined motivation, through actual or expected evaluation by others. Often, the simple surveillance of study participants by others who have the power to evaluate them has been shown to undermine the intrinsic motivation of both adults (Amabile et al., 1990; Pittman et al., 1980; Plant & Ryan, 1985) and children (Lepper & Greene, 1975). In one study, even though the evaluations were positive, subjects continued to display lower subsequent intrinsic motivation towards the activity when their performance was evaluated (Harackiewicz & Manderlink, 1984).

Other studies have directly tested the effects of expected evaluation on creativity (Amabile, 1979; Amabile et al., 1990; Cheek & Stahl, 1986). These studies have found strong empirical evidence that the expectation of external evaluation can undermine creativity. For example, in 1979, Amabile found that college students who expected expert evaluation of their artwork exhibited lower levels of creativity than those who expected no evaluation. Thus, within the present study the negative relationship between principal expert power and teacher creativity may be related to teacher inhibitions due to evaluation expectations.

Legitimate Power

The data present three unexpected findings regarding principal legitimate power. First, it was originally proposed that leader legitimate power would influence subordinate self-determined and controlled motivational orientations via relationships moderated by autonomy-support. However, upon review of the moderated multiple regression models for self-determined and controlled motivations (Tables 13 and 14) no

evidence of moderation was found. The necessary interaction between legitimate power and autonomy-support within both models was not significant.

Two possible reasons why an interaction between legitimate power and autonomy-support was not found can be offered. First, the lack of an interaction between legitimate power and autonomy-support may have been due to the want for greater variability in the autonomy-support scores (M = 3.95, SD = .95). On a scale of 1 to 5, the autonomy-support scores clustered between 3 (neither agree or disagree) and 5 (strongly agree). This indicates few teachers identified their principal to be low in autonomy-support. Another possible reason is that the scale used did not capture key elements of low autonomy-support within the educational setting. Without a strong identification of a low autonomy-support group, comparisons between high vs. low autonomy-supportive principals could not be made—thus the lack of significant interaction and moderation effects.

Motivation. Because autonomy-support did not moderate the relationships between principal legitimate power and teacher motivation to be creative, Hypotheses 4c, 4d, 5c, and 5d were not supported. These hypotheses addressed relationships between legitimate power and subordinate motivation that were dependent upon the existence of a moderated relationship between legitimate power and autonomy-support. Nonetheless, the data did present a significant, positive relationship between principal legitimate power and subordinate self-determined motivation. This finding suggests that the teachers surveyed are capable of integrating legitimized requirements to be creative at work. That is to say, they a) identify with the regulatory structure established by the principal's legitimate position and b) realize the personal value of, and accept

responsibility for, performing creatively at work. In turn the integration of the legitimate requirements to be creative strengthens or builds upon the teachers' self-determined motivation.

Attitudes. The second finding regarding legitimate power was that it was positively related to subordinate attitudes towards being creative at work. This finding suggests that the greater a principal's legitimate power the stronger the teachers' positive attitude towards creativity. This finding can be explained if the basic aspects of legitimate power are considered. Legitimate power is based on perceptions about the responsibilities, prerogatives, and obligations associated with a leader's position of power. Subordinates obey the requests and demands of the leader because they believe the leader is acting in the best interest of the organization. Thus, it is proposed that when teachers believe their principal is utilizing his or her position of authority to support rather than thwart creativity in an effort to better the school, the teachers will develop more positive attitudes towards creativity. The attitudes will be positive because they are formed on the basis of beliefs about specific positive consequences of performing creatively at work (e.g., school or educational improvements). That is, the teachers who believe their creativity supports the principal's legitimate goals will hold more favorable attitudes toward performing creatively at work.

Subordinate creativity. The third unique finding regarding legitimate power was that its strongest influence on subordinate creativity was through its partially mediated direct affect. The relationship between legitimate power and subordinate creativity is thought to be partially mediated because the significance of the legitimate power regression coefficient decreased from .01 in Step 2 of the Hierarchical Set Analysis

(Table 14) to .05 in Step 3. Because the reduction in significance is not complete, meaning it does not go from significant to non-significant, the mediation is believed to be partial. None-the-less, the significant positive relationship found between principal legitimate power and teacher creativity indicates legitimate power is important to the support and promotion of subordinate creativity.

Multiple studies concerned with management skills or styles that are conducive to individual creativity have shown how key elements of legitimate power are important to creativity. For example, Amabile and Gryskiewicz (1987) found in an interview study of R&D scientists, that supervisors who established clear organizational goals, but allowed subordinates to select procedural goals, contributed positively to creativity. Additionally, it has been shown that managers who establish an appropriate balance between task constraints and subordinate freedom to choose how to pursue objectives, help increase individual creativity (Amabile & Gryskiewicz, 1987; Andrews & Farris, 1967; King & West, 1985, as cited in Amabile et al., 1996).

From this perspective, the positive relationship between principal legitimate power and teacher creativity may reflect a principal's ability to establish organizational goals, while maintaining a balance between freedom of choice and pressure to perform. Teacher endorsements of statements like, "My principal can give me the feeling I have responsibilities to fulfill," and the positive link between principal legitimate power and teacher creativity suggests such a balance may exist.

Referent power

Subordinate Motivation. Leader referent power represents the desire of one to identify with or please a person whom s/he admires. According to the teacher responses

on the referent power scale, the principals in this sample possess moderately high referent power. Hypothesis 8 proposed that teacher perceptions of autonomy-support would moderate (a) the relationship between principal referent power and subordinate self-determined motivation, and (b) the relationship between principal referent power and subordinate controlled motivation. Neither relationship was moderated. The necessary interactions between referent power and autonomy-support were not significant. Because these interactions were not significant Hypothesis 8 was rejected. Note, however, that Hypothesis 8 was dependent upon the autonomy-support scores, as was the proposed moderated relationship between leader legitimate power and subordinate motivation. Thereby, similar suggestions can be made as to why an interaction was not found: a) the autonomy-support instrument possibly did not capture elements of low autonomy-support within the public educational environment, or b) the autonomy-support scores lacked the variability needed to establish a moderated relationship. However, this autonomy-support measure has been successfully used in a number of environments [medical school instruction (Williams & Deci, 1996), professional doctor-patient relationships (Williams et al. 1996)]. For this reason, the latter of the two reasons is here believed to be the most plausible explanation for the lack of an interaction between referent power and autonomy-support.

Hypotheses 9b, 10c, and 10d were also rejected. These hypotheses addressed relationships between referent power and subordinate motivation that were dependent upon the moderated relationship tested by Hypothesis 8. Because Hypothesis 8 was rejected, support for these hypotheses was not possible.

Subordinate attitudes. Leader referent power was hypothesized to be positively related to subordinate attitudes towards creativity at work. This hypothesis was rejected. Rather, the results suggest that teachers of a highly referent principal are not more likely to express a more positive attitude towards being creative at work than teachers under the direction of a less referent leader. Thus, it seems the teachers' attitudes towards creativity are not impacted by principal referent power.

Technical support. Principal referent power was unexpectedly found to be positively related to technical support. This finding indicates that principals who were high in referent power were perceived by teachers to be more capable of providing technical support than principals low in referent power. Two reasons for this link may be offered. First, teachers may greatly respect principals who provide technical support. The support offered by a principal enhances the teachers' view that the principal is a person worthy of their admiration. The more technical support offered the more referent the principal may seem. On the other hand, because the causality of this relationship is not known and may go either way, the link between referent power and technical support may simply reflect how approachable the leader seems when subordinates need technical assistance. The more referent the leader the more approachable s/he may seem. For example, if a leader is not well liked, subordinates may be less inclined to request that leader's help or advice. On the other hand, when a leader is well liked and admired, subordinates may be encouraged to maintain open interactions with the leader due to their positive feeling towards the leader. As a result, the subordinates are more comfortable or confident seeking the leader's assistance in answering technically

relevant questions. In turn, the leader's referent power enhances the subordinates' perceptions of technical support availability.

Subordinate Creativity. The data demonstrate that principal referent power was directly related to teacher creativity. Insight into what is happening here may be gleamed from Kanter's (1983) commentary on organizational expectations for innovation. She highlights that for employees to be innovative, they must not only be able to generate new and unique ideas, they must also feel confident their attempts at innovation will be well received. From this comment it is proposed that the referent relationship established between a principal and his/her teachers bolsters the teachers' confidence to express creativity. However, how this relationship is established cannot be determined by this study. It may be that principals are attracted to teachers high in creativity. As a result, stronger referent relationships are established between highly creative teachers and their principal. In contrast, the referent leader may engage in certain behaviors that institute an environment conducive to creativity. For example, the leader can simply request creative performance from subordinates. The subordinates are willing to carry out the request because the leader is well liked and they want to maintain their relationship with the leader. Also, the referent leader can champion creativity by demonstrating the desired behaviors. By doing so, the principal inspires confidence in the teachers to also be creative. In either case the referent relationship established between the principal and the teacher contributes to subordinate creativity. The greater the referent relationship the greater the subordinate creativity.

Reward power

The results regarding reward power should be reviewed with caution. Recall, the reward power scale reliability was low (.63) and overall principal reward power was generally low (M = 2.38, SD = .80). However, this low score may not completely reflect principal reward power. Specifically, the instrument used to assess reward power addressed pay and financial incentive issues. As was noted earlier, principals may not have the ability to augment teacher pay. Other factors (e.g., tenure) and organizational structures (e.g., the school board) may set salary and bonus policies. Thereby, the instrument used within this study may have failed to assess other forms of rewards within the control of principals (e.g., nominations for teaching awards, cookies in the teacher's lounge). With this limitation in mind, the reward power data are reviewed.

Subordinate Motivation. An evaluation of the results shows that reward power was not related to self-determined motivation, contrary to expectations. In contrast, support for the hypothesis that reward power would be positively related to teacher controlled motivation was found. These two findings suggest that when a leader's reward power is low it neither increases nor decreases subordinate self-determined motivation to be creative. On the other hand, even the smallest amount of leader reward power appears to increase subordinate controlled motivation. However, the reward power scale's limitations lead one to view this result carefully. Thereby, the question remains, as leader reward power increases in magnitude will its effect on controlled motivation also increase? Given the positive relationship found here, it is projected future research, using valid and reliable reward power scales, will find increases in leader reward power do positively impact subordinate controlled motivation. As the leader's reward power increases, so will the external or internal pressures subordinates'

experience with regard to performing creatively at work. As a result, the subordinates will demonstrate a greater sense of obligation to perform creatively at work when their leader's reward power is high.

Subordinate Attitudes. It was proposed that a subordinate's beliefs concerning the consequences linked to creativity would be influenced by a leader's use of reward power. The significant relationship between principal reward power and subordinate attitudes towards creativity supports this position. These findings expand the current literature by demonstrating a link between rewards and attitudes within the work place. Prior theory and research (e.g., Amabile, 1983, 1985, 1988; Deci, 1971, 1975; Deci & Ryan, 1985) frequently inferred attitudes were influenced by rewards based on measured changes in intrinsic motivation. However, Crano and his colleagues (Crano et al., 1988; Crano & Sivacek, 1982, 1984) have shown rewards can be linked to attitudes when the rewards are performance based. The present study's findings add to Crano and his colleagues' work in that the reward power scale emphasized rewards that are typically considered to be performance based (i.e., pay). Thus, even when a leader's reward power is low, the subordinates may hold higher positive attitude levels. The attitudes are higher because the consequences of creativity are positive and are reinforced by monetary rewards.

Coercive Power

Leader coercive power represents the target person's perception that the powerholder has the ability to punish her/him (French & Raven, 1959). According to the teacher responses on the coercive power scale, the principals in this sample possess low to moderate levels of coercive power. On a scale of one to five the mean coercive power

score was 3.27 (SD = 1.15). This indicates that the principals have a limited ability to inflict punishment or aversive consequences should a teacher fail to conform to the principal's influence attempts.

The principal coercive power data show coercive power did not contribute to subordinate motivation or subordinate creativity. Instead it was found that principal coercive power was negatively related to perceived technical support availability. These findings suggest teachers do not defer to their principal's attempts to employ external pressures on them. Rather, the findings suggest the teachers' perceptions of the leader's ability to be coercive influences the perception of the principal's ability to provide technical support. Thus, the greater the principal's coercive power the less s/he is perceived as being capable of providing technical support.

One reason for these findings may be that, regardless of a principal's coercive power, teachers understand the responsibilities of their job and do not allow coercive power to distract them from those duties. As a result, subordinate motivation to be creative is not affected by principal coercive power. Instead, it is the teachers' perceptions of technical support availability that are impacted. However, the directionality of this relationship is currently uncertain. It may be that as the leader's coercive power increases, s/he may be less inclined to offer technical support. Instead the leader's efforts are dedicated to monitoring subordinates to ensure they are on task. On the other hand, it may be that a leader low in technical support is interpreted by subordinates as withholding valuable support. As a result resentment builds and the leader comes to be viewed as being coercive. Either way, the leader's perceived lack of

sharing relevant personal knowledge has here been associated with making the teachers' work difficult or unpleasant.

The fact that coercive power was not related to subordinate creativity is consistent with other research findings where no relationship between punishment and performance was found (e.g., Curphy et al., 1992, as cited in Hughes et al, 1993, Podsakoff et al., 1982). It should be noted, however, that the coercive scale used did not take into account how the 18 principals administer their coercive power. For example, the instrument did not assess whether the principals utilize surveillance, administrative pressures, verbal, or other potential forms of coercion to pressure teacher work performance. Thus, variability in the level and manner of coercive power administration may have detracted from an accurate picture of how leader coercive power impacts teacher creativity. Future research should address this issue. By doing so, further insight into how coercive power impacts subordinate creativity will be found.

Power Bases in the Test of the Overall Model

The model presented in Figure 13 reflects the outcome of the test of the overall model. Most notable in this model is that it reflects the importance of three of the five power bases (expert, legitimate, and referent) to subordinate creativity. It also embraces the importance of subordinate self-determined motivation, and acknowledges a potential role of technical support to subordinate creativity. These last two factors will be discussed later.

The prominence of expert, referent, and legitimate powers as the three dominant power bases influencing subordinate creativity is not unlike the findings of past social power research. Podsakoff and Schriesheim (1985) evaluated field studies that used

French and Raven's (1959) five-base typology of social power. In their review of the studies concerned with power base usage and subordinate compliance, they found subordinates consistently reported that expert and legitimate powers were the strongest reasons for complying with supervisory requests. Referent power was an intermediate reason for compliance. Reward power was a relatively weak reason, and coercive power was the least important reason why subordinates reported compliance with supervisory requests. Explanations for Podsakoff and Schriesheim (1985) and this study's findings are as follows. First, a leader's legitimate power represents the right of a supervisor to influence a subordinate and the obligation of a subordinate to accept that influence. It is this well-defined "right to govern" or the "consent of the governed" that establishes legitimate power as a leading form of social power (McGregor, 1967, as cited in Landy, 1989).

Second, a leader's expert and referent powers are not dictated by the organizational system (Ivancevich & Donnelly, 1970). These two categories of power are more closely associated with the technical, behavioral, and administrative skills of each individual leader. Thus, they are directly controlled by the leader and are more likely to influence interpersonal relationships than are reward or coercive power. Ivancevich & Donnelly (1970), state that because "referent and expert powers are affected by the idiosyncrasies of each leader, they are likely to be an increment in influence above the influence which is generated from possessing a position in the organizational hierarchy," (p. 541)

To continue along these same lines Podsakoff and Schriesheim (1985) further present an argument that would support why reward and coercive powers in this study

failed to significantly relate to subordinate creativity. They note that sample differences may impact how studies of social power turn out. That is, the types of power available to leaders in different work or organizational environments will determine how study results are interpreted. For example, within this study the principals were part of a public school system in which they may depend primarily on their legitimate, expert and referent powers. They do so because the use of reward or coercive power may not be authorized. To repeat this study in a private, profit-making organization would likely produce different results. The supervisors within the private market are likely to behave differently based upon the latitude their organization allows them concerning rewards and punishments. These behaviors would in turn have different effects on the outcome and criterion variables of this study.

Thus, the findings of the present study regarding social power and subordinate creativity highlight the role expert, referent, and legitimate power play in how principals impact teacher creativity. Principals should note that expert power has a potential to negatively impact teacher creativity while their legitimate position of authority and their professional relationship with teachers may positively impact subordinate creativity.

Subject Variables

As mentioned earlier, the model in Figure 13 demonstrates that two of the four subject variables were positively associated with subordinate creativity. Self-determined motivation evidenced a positive direct relationship to subordinate creativity. Technical support demonstrated a total associative, but not direct relationship to subordinate creativity. Neither subordinate controlled motivation nor subordinate attitude toward

creativity at work was significantly related to subordinate creativity. The rationale and implications of these linkages are discussed below.

Technical Support

The significant relationship between technical support and subordinate creativity indicates that when technical support was high teacher creativity was also high. This finding is consistent with other research findings (Damanpour 1991; Kanter 1983) and substantiates that access to technical support can contribute to subordinate creativity. However, technical support's total associative effect on teacher creativity was reduced when it was included in the test of the overall model (Step 3, Table 14). This reduction in significance suggests multicollinearity may exist between technical support and one, or more, of the antecedent variables. The most likely candidate for this relationship is principal expert power. Recall the relationship between expert power and technical support was significant at the .001 level. Thereby, the presence of principal expert power in Step 3 may have masked or reduced technical support's ability to account for unique variability in subordinate creativity above and beyond that accounted for by expert power. Should this be the case, it appears technical support is important to teacher creativity when it is analytically isolated from the antecedent variables included in the test of the overall model. However, because multicollinearity may exist between it and one or more of the antecedent variables, technical support is not considered a good candidate to be a mediator within the model proposed by Figure 1.

Subordinate Motivation

Within this study, self-determined theory was adopted to differentiate the unique contributions the varying forms of subordinate motivation provide subordinate

creativity. In doing so, the theory differentiated between self-determined and controlled motivation. Self-determined motivation represented creative behavior driven by an internal locus of causality that is experienced as chosen or volitional. Such an experience is believed to be important to subordinate creativity because the individual freely engages in the self-determined activity. S/he participates for the simple enjoyment or personal value gained from the task. When one engages in an activity for these reasons creative performance my be enhanced (Amabile, 1983, 1988).

In contrast, controlled motivation represented creative behavior determined by an external or internal locus of causality that is experienced as pressure from demands and contingencies (Deci & Ryan, 1985). This form of motivation is important to a study of subordinate creativity because it leads the individual to be creative, not because s/he wants to be, but because s/he wishes to elevate experienced pressures to be creative. As a result of these experienced pressures, overall creativity may diminish (Amabile, 1983, 1988; Amabile & Gryskiewicz, 1987).

Additionally, the theory presented herein separated self-determined forms of motivation into intrinsic and integrated motivation, and controlled forms of motivation into external and introjected motivation. The breakdown of self-determined motivation and controlled motivation into these four forms of motivation was proposed in an effort to gather a more detailed understanding of how differing forms of motivation impact subordinate creativity. However, the instrument used to address subordinate motivation failed to effectively isolate these four distinct forms of motivation. Instead, only the primary forms of motivation, self-determined and controlled, were assessed. Therefore, the goal to evaluate the influence of subordinate motivation on subordinate creativity

was still possible.

Teachers in this study indicated their motivation to be creative at work was more frequently self-determined than controlled. The mean self-determined score (3.25, SD = .64), was 1.35 points higher than the controlled motivation score (1.90, SD = .54). This suggests that the teachers within this sample had a tendency to be creative at work for the simple enjoyment and satisfaction of being creative. Only sometimes were they directed by internal or external pressures to be creative at work.

Two hypotheses of this study were: (a) that self-determined motivation would be positively related to subordinate creativity, and (b) that controlled motivation would be negatively related to subordinate creativity. It was believed that subordinate self-determined motivation would prove to enhance subordinate creativity while subordinate controlled motivation would detract from it. The overall results of this study confirm the former, but not the latter of these two hypotheses. In review of Table 14, Step 2, it is evident neither self-determined motivation nor controlled motivation were significantly related to subordinate creativity. However, the regression coefficient for self-determined motivation was significant at the .10 level. It thereby met the cutoff criteria for inclusion in Step 3, the test of the overall model. When self-determined motivation was included in Step 3 the regression coefficient for self-determined motivation was significant ($p < .05$). This finding indicates self-determined motivation does contribute to subordinate creativity in a positive manner. The increase in significance level suggests mulitcollinearity may have existed between self-determined motivation and one of the other subject variables. Once the other variables were removed from the regression model, a clearer view of how self-determined motivation impacts subordinate creativity

became evident. Therefore, for the purpose of the argument, the results of Step 3 are emphasized.

According to past theory and research (e.g., Amabile 1983, 1986, 1987, 1988, Amabile et al., 1994; Barron & Harrington, 1981; Woodman et al., 1994), intrinsic motivation, a form of self-determined motivation, is essential to individual creativity. It enables the individual to focus on the essential elements of the task, without excessive consideration for, or distraction by, controlling motivational forces (e.g., a sense of guilt or monetary rewards). The findings of the present study support this view of motivation and creativity. They demonstrate that teachers who were self-reportedly higher in self-determined motivation were ranked by their principals to be more creative than teachers who were less self-determinedly motivated.

In addition, the results suggest that the salience of controlled motivation as a negative influence on creativity should be reconsidered. The teachers acknowledged occasionally being creative at work in response to internal or external pressures. However, these pressures did not significantly detract from their creative performance. It appears, as Deci and Ryan (1985) have suggested, that self-determined motivation and controlled motivation need not work in opposition. Rather, it may be that when a person is primarily self-determined, the salience of controlled motivators may be lessened. Thereby, the type of one motivator does not necessarily undermine the other (Amabile, 1997). Thus, when a teacher was primarily self-determined her/his creative drive may have remained volitional.

Subordinate Attitudes Towards Creativity at Work.

A review of the data shows that the teachers who participated in this study had generally positive attitudes towards performing creatively at work. The mean teacher attitude score was 3.85 (SD = .55) on a 5 point Likert type scale. However, these favorable attitudes failed to demonstrate a significant positive relationship to principal ratings of teacher creativity, as hypothesized. Reviewing the findings within the related innovation literature, this study's findings contradict past innovation theory and research that have shown attitudes towards innovation can precipitate innovative behavior (e.g., Ettlie & O'Keefe, 1982; Kimberly, 1981; Ouchi, 1980; Wilkins & Ouchi, 1983). Rather, it appears the present study's findings provide evidence that knowledge of a teacher's attitude toward creativity at work may not be a good indicator of creative behavior. This suggests that practitioners who use persuasive techniques (e.g., rewards) to encourage subordinate creativity must realize that even if they are successful in increasing a positive attitude towards creativity, behavioral changes are not guaranteed (Eagly & Chaiken, 1993).

Conclusions

Collectively the present study's findings demonstrate that a union of the leader social power and individual creativity research is an endeavor worthy of further consideration. As evidenced by Table 18, the results confirm that social-environmental influences are important to subordinate creativity. The details of each relationship depicted in Table 18 have already been discussed. However, for summary purposes, these results can be condensed and represented as three major findings.

First, it was found that the leader power bases can directly influence subordinate

creativity. Three of the five power bases (expert, referent, and legitimate) demonstrated strong direct relationships with subordinate creativity. Expert power's direct effect was negative. Referent power's direct effect on subordinate creativity was positive, and legitimate power presented a partially mediated, yet strong direct relationship. Finding these relationships was unexpected. It was previously proposed that each power base would influence specific subject variables that would, in turn, impact subordinate creativity. Thus, the power bases' primary influences on subordinate creativity were thought to be mediated by the subject variables evaluated in this study. It is now evident this view requires reconsideration. The strong relationships between the three power bases and subordinate creativity found here suggest leader influences on subordinate creativity are more direct that previously thought. Thus, future research and theory should consider the unique value expert, referent, and legitimate powers contribute to subordinate creativity.

Second, it was found that variables other than leader power can influence subordinate creativity. Two of the four subject variables were positively related to subordinate creativity. Self-determined motivation had a positive direct relationship with subordinate creativity. Technical support demonstrated a positive total associative, but not a direct, relationship to subordinate creativity. These results support the position that multiple variables, in addition to leader power, contribute to a subordinate's work experience and subordinate creativity.

Lastly, it was shown that leader social power bases are related to subject variables important to subordinate creativity. Specifically, four of the five power bases (expert, legitimate, referent, and coercive) were significantly related to one or both of the

subject variables, technical support and self-determined motivation. For brevity purposes, these relationships are depicted in Table 18. These results indicate the leader's social powers are capable of influencing variables, like technical support, that are found within the work environment.

Together these three major findings demonstrate subordinate creativity is subject to numerous influences. Contextual variables (such as technical support) and personal motivational levels are two factors that contribute to the subordinate's work experience. Additionally, the impact social influences (derived from a leader's social power) can have on subordinate creativity is underscored by the present study's findings. As evidenced, a leader's social power can enhance or constrain a) variables important to subordinate creativity and b) subordinate creativity directly.

Also, these findings highlight the complexity of the leader-subordinate relationship. However, they do not offer definitive solutions as to how leader social power impacts subordinate creativity within all leader-subordinate relationships. Thereby, the presented results should only be used as catalysts for further thought and consideration of how leader social power impacts subordinate creativity within other work environments and organizations. As mentioned earlier, the outcomes of studies concerned with social power are potentially subject to organizational nuances. This factor compounded by the exploratory nature of the research conducted, and the limitations of the study, disallow recommendations for practical applications to be made. Before such recommendations can be made, future theory and research will have to address the limitations of this study as well as explore subordinate creativity issues within other field settings.

Limitations of the Study

Several limitations are evident within the present study. The first and foremost limitation of the study evolves around the instruments used to assess several of the subject variables. Specifically, the instrument used to measure subordinate motivation to be creative was inadequate in its ability to assess the four distinct forms of motivation (intrinsic, integrated, introjected, and external) outlined within this study. The instrument was not properly tested prior to its inclusion in the study. It would have been prudent to have had the instrument reviewed by an expert panel in an effort to reduce the number of items utilized. Also, a larger pilot study sample should have been used to evaluate the instrument's ability to assess the four distinct forms of subordinate motivation.

Second, as discussed earlier, Hinkin and Schreishiem's (1989) measure of social power bases may not have effectively addressed the reward power of principals. This instrument is primarily concerned with pay as a reward and does not integrate other forms of reward (e.g., flowers in the teacher's lounge). Future researchers who intend to use this measure within governmental work environments should note this limitation when the supervisor's ability to influence salaries is limited.

Third, the autonomy-support scale possibly did not capture key elements of low autonomy-support within the public school setting. Should this be the case, the scale's inability to assess low autonomy-support levels for public school principals prevented hypotheses proposed within the current research from being addresses.

Another limitation of this study is that the results potentially reflect respondent bias. This is because the study relied on the volunteered participation of the principals

and teachers. The principals who participated may tend to have an open mind to participation and thereby have a very different profile from the principals who did not participate. Additionally, the solicitation letter to the teachers indicated the study entailed a study of creativity. Teachers volunteering to participate may already have had inherent interests in performing creatively at work. However, it should be noted that the teachers' volunteering did not appear to skew teacher creativity ratings. The principals' rankings of teacher creativity was normally distributed.

Lastly, this study represents an evaluation of leader social power and subordinate creativity at one point in time. Because the topic of interest was how leader social power influences subordinate creativity, it would have been useful to have conducted a longitudinal study. A longitudinal study would have required that the perceptions and performance of leaders and subordinates be assessed at various times during their professional relationship. Such an assessment would have provided insights into how relationship transitions influence subordinate creativity. However, such an effort was beyond the scope of the present study.

Future Research

The research reported here suggests several directions for future study. Notably, further theory development and research should be dedicated to expanding upon the connections between leader social power and subordinate creativity found here. This will require concerted efforts to develop new models that a) address how leader social power impacts subordinate creativity within varying work environments, b) continue to utilize self-determination theory to describe subordinate motivation to be creative, and c) include environmental variables linked to creativity.

When evaluating how leader social power relates to subordinate creativity, the continued inclusion of all five power bases in future models is encouraged. Previous research and theory have not viewed the influence leaders have on individual creativity from the social power perspective. None-the-less, a few studies have pointed to the positive influence supervisory encouragement [e.g., the provision of open interactions (Kimberley, 1981; Kimberley & Evanisko, 1981)] can have on creativity. The utilization of French and Raven's (1959) social power theory provides a means by which to evaluate specific managerial influences that lead people to perceive such encouragement. It also provides an opportunity to evaluate specific leader influences that lead subordinates to perceive impediments to personal creativity.

Also, the fact that only three of the five power bases (expert , legitimate, and referent) were found within the present study to be related to subordinate creativity does not prove connections between subordinate creativity and the other two power bases (coercive and reward) do not exist within other work environments. With further study it may be found that reward power and coercive power play a more defined role in determining subordinate creativity when, for example, differences in organizational structures (e.g., state government vs. private industry) or pay policies (e.g., salary vs. piece work) are taken into account.

In addition to including all five power bases in future models of subordinate creativity, it is suggested that self-determination theory continue to play a role in structuring future subordinate creativity theory. It is felt that the inclusion of self-determination theory in the present study was an important step towards expanding how theorists and researcher look at individual motivation to be creative. This is because past

research has, for the most part, looked mostly at intrinsic or externally extrinsic forms of motivation. In doing so past research has overlooked integrated and introjected forms of motivation. This has resulted in a potential gap in our understanding of the types of motivation that impact individual creativity. However, the continued inclusion of self-determination theory in creativity research will require the development of valid and reliable scales which assess all four forms of motivation (i.e., intrinsic, integrated, introjected, and external). Once this has been accomplished researchers can begin to account for how self-induced forms of self-determined and controlled motivation impact creativity.

Beyond the inclusion of the five power bases, and self-determined motivation theory, future research should continue evaluating how environmental variables impact subordinate creativity. It was here found that technical support has a potential role in contributing to subordinate creativity. However, further appraisal of this variable is needed. Also, further consideration of environmental variables not examined by the present study is needed. For example, past research has evidenced factors such as time pressures and physical resources are important to creativity. By evaluating how leader social power relates to these and other potential variables, broader steps towards understanding the role leaders play in determining subordinate creativity will be taken.

However, in order to take these steps it will be necessary to continue field-testing the evolving theories. Despite reduced control over study parameters, field studies allow research to focus on people within their daily work environments. The reactions of the personnel under study should be more natural and thereby afford greater generalizability of the studies' results.

Closing Remarks

In closing, the study of creativity within organizational settings promises to provide a better understanding of the potential contributions each individual has to offer his or her organization. Perhaps the most important lesson gleamed from the present study is that leader social power, as perceived by subordinates, does make a difference in the level of subordinate creativity. From the present results it appears that teachers will be more creative when they perceive, for example, that their principal is referent and holds legitimate power. Ultimately, the challenge of future research will be to determine whether trends--regarding leader social power and subordinate creativity--across different work environments exist. For example, is expert power consistently negatively related to subordinate creativity? Such findings will be important, not only for theory development, but also for application to managerial practice. Managers at all levels who wish to foster creativity will be able to do so not only by paying attention to they sort of people they hire (i.e., looking at personality characteristics or skills previously identified to be important by earlier creativity research), but also by paying attention to how they interact with these potentially creative individuals.

REFERENCES

Abbey, A., & Dickson, J. W. (1983). R&D work climate and innovation in semiconductors. Academy of Management Journal, 26, 362-368.

Abdalla, I. A. H. (1987). Predictors of the effectiveness of supervisory social power. Human Relations, 40, 721-740.

Aiken, M., & Hage, J. (1971). The organic organization and innovation. Sociology, 5, 63-82.

Amabile, T. M. (1979). Effects of external evaluation on artistic creativity. Journal of Personality and Social Psychology, 37, 221-233.

Amabile, T. M. (1982). Children's artistic creativity: Detrimental affects of competition in a field setting. Personality and Social Psychology Bulletin, 8, 573-578.

Amabile, T. M. (1983). The Social Psychology of Creativity. New York: Springer-Verlag.

Amabile, T. M. (1985). Motivation and creativity: Effects of motivational orientation on creative writers. Journal of Personality and Social Psychology, 48, 393-399.

Amabile, T. M. (1987). The motivation to be creative. In S. Isaksen (ED.), Frontiers of creativity research: Beyond the basics (pp. 223-254). Buffalo, N.Y.: Bearly Limited.

Amabile, T. M. (1988). A model of creativity and innovation in organizations. Research in Organizational Behavior, 10, 123-167.

Amabile, T. M. (1989). The creative environment scales: Work environment inventory. Creativity Research Journal, 2, 231-253.

Amabile, T. M. (1993). What does a theory of creativity require?. Psychological Inquiry, 4, 179-181.

Amabile, T. M. (1997). Entrepreneurial creativity through motivational synergy. Journal of Creative Behavior, 31, 18-26.

Amabile, T. M., Conti, R., Coon, H., Lazenby, J., & Herron, M. (1996). Assessing the work environment for creativity. Academy of Management Journal, 39, 1154-1184.

Amabile, T. M., DeJong, W., & Lepper, M. R. (1976). Effects of externally imposed deadlines on subsequent intrinsic motivation. Journal of Personality and Social Psychology, 34, 92-98.

Amabile, T. M., & Gitomer, J. (1984). Children's artistic creativity: Effects of choice in task materials. Personality and Social Psychology Bulletin, 10, 209-215.

Amabile, T. M., Goldfarb, P., & Brackfield, S. C. (1990). Social influences on creativity: Evaluation, coaction, and surveillance. Creativity Research Journal, 3, 6-21.

Amabile, T. M., & Gryskiewicz, N. D. (1989). The creative environment scales: Work environment inventory. Creativity Research Journal, 2, 231-253.

Amabile, T. M., & Gryskiewicz, S. S. (1987). Creativity in the R&D Laboratory. Greensboro, NC: Center for Creative Leadership.

Amabile, T. M., & Gryskiewicz, S. S. (1988). Creative human resources in the R&D laboratory: How environment and personality affect innovation. In L. Kuhn (Ed.), Handbook for creative and innovative managers (pp. 501-524). New York: McGraw-Hill.

Amabile, T. M., Hennessey, B. A., & Grossman, B. S. (1986). Social Influences on creativity: The effects of contracted-for reward. Journal of Personality and Social Psychology, 50, 14-23.

Amabile, T. M., Hill, K. G., Hennessey, B. A., & Tighe, E. M. (1994). The work preference inventory: Assessing intrinsic and extrinsic motivation. Journal of Personality and Social Psychology, 66, 950-967.

Andrews, F. M., & Farris G. F. (1967). Supervisory practices and innovation in scientific teams. Personnel Psychology, 20, 497-515.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A., & Walters, R. H. (1963). Social Learning and personality development. New York: Rinehart and Winston.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. Journal of Personality and Social Psychology, 51, 1173-1182.

Barron, F., & Harrington, D. M. (1981). Creativity, Intelligence, and personality. Annual Review Psychology, 32, 439-476.

Bass, B. M. (1990). Bass & Stogdill's handbook of leadership: Theory, research, and managerial applications. New York: Free Press.

Basu, R., & Green, S. G. (1996). Leader-member exchange and transformational leadership: Predicting subordinate creativity. Manuscript submitted for publication.

Bem, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), Advances in experimental social psychology (pp. 1-62). NY: Academic Press.

Benware C., & Deci, E. L. (1975). Attitude change as a function of the inducement for espousing a proattitudinal communication. Journal of Experimental Social Psychology, 11, 271-278.

Besemer, S. P., & O'Quin, K. (1987). Creative product analysis: Testing a model by developing a judging instrument. In S. Isaksen (Ed.), Frontiers of creativity research: Beyond the basics (pp. 341-357). Buffalo, N.Y.: Bearly Limited.

Besemer, S. P., & Treffinger, D. J. (1981). Analysis of creative products: Review and synthesis. Journal of Creative Behavior, 15, 158-178.

Beyer, J. M., & Trice, H. M. (1984). A field study of the use and perceived effects of discipline in controlling work performance. Academy of Management Journal, 27, 743-764.

Bryne, D. (1971). The attraction paradigm. NY: Academic Press.

Cartwright, D. (1965). Influence, leadership, control. In J. G. March (Ed.), Handbook of organizations (pp. 1-47). Chicago: Rand McNally.

Cheek, J. M., & Stahl, S. S. (1986). Shyness and verbal creativity. Journal of Research in Personality, 20, 51-61.

Cobb, A. T. (1980). Informal influence in the formal organization: Perceived sources of power among work units. Academy of Management Journal, 23, 155-161.

Cohen, J. & Cohen, P. (1983). Applied multiple regression/correlation analysis for the behavioral sciences. Hillsdalle, NJ: Lawrence Erlbaum Associates.

Crano, W. D., & Sivacek, J. (1982). Social reinforcement, self-attribution, and the foot-in-the-door phenomenon. Social Cognition, 1, 110-125.

Crano, W. D., & Sivacek, J. (1984). The influence of incentive-aroused ambivalence on overjustification effects in attitude change. Journal of Experimental Social Psychology, 20, 137-158.

Crano, W. D., Gorenflo, D. W., & Shackelford, S. L. (1988). Overjustification, assumed consensus, and attitude change: Further investigation of the incentive-aroused ambivalence hypothesis. Journal of Personality and Social Psychology, 55, 12-22.

Crutchfield, R. (1962). Conformity and creativity thinking. In H. Gruber, G. Turrell, & M. Wertheimer (Eds.), Contemporary approaches to creative thinking (120-143). New York: Atherton Press.

Csikszentmihalyi, M. (1975). Beyond boredom and anxiety. San Francisco: Jossey-Bass.

Csikszentmihalyi, M. (1988). Motivation and creativity: Toward a synthesis of structural and energistic approaches to cognition. New Ideas in Psychology, 6, 159-176.

Curtis, B., Smith, R. E., & Smoll, F. L. (1979). Scrutinizing the Skipper: A study of leadership behaviors in the dugout. Journal of Applied Psychology, 64, 391-400.

Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. Academy of Management Journal, 34, 555-590.

deCharms, R. (1968). Personal causation: The internal affective determinants of behavior. San Diego, CA: Academic Press.

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. Journal of Personality and Social Psychology, 18, 105-115.

Deci, E. L. (1972). Intrinsic motivation, extrinsic reinforcement, and inequity. Journal of Personality and Social Psychology, 22, 113-120.

Deci, E. L. (1975). Intrinsic motivation. NY: Plenum Press.

Deci, E. L. (1978). Applications of research on the effects of rewards. In M. Lepper & D. Greene (Eds.), The hidden costs of reward (pp. 193-204). New Jersey: Lawrence Erlbaum.

Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. Journal of Applied Psychology, 74, 580-590.

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating Internalization: The self-determination theory perspective. Journal of Personality, 62, 119-142.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. Journal of Research in Personality, 19, 109-134.

Deci, E. L., & Ryan, R. M. (1987). The support of autonomy and the control of behavior. Journal of Personality and Social Psychology, 53, 1024-1037.

Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation, (pp.237-288). Lincoln: University of Nebraska Press.

Deci, E. L., Schwartz, A. J., Sheinman, L., & Ryan, R. M. (1981). An instrument to assess adults' orientation toward control versus autonomy with children. Journal of Educational Psychology, 73, 642-650.

Dewar, R. D., & Dutton, J. E. (1986). The adoption of radical and incremental innovations: An empirical analysis. Management Science, 32, 1422-1433.

Domer, L. R. (1974). Dentist leader behavior and dental team effectiveness. (Doctoral dissertation, University of Kentucky, 1975). Dissertation Abstracts International, 36, 1637A.

Dowd, E. T. (1989). The self and creativity: Several constructs in search of a theory. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), Handbook of creativity (pp. 233-242). New York City, NY: Plenum.

Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Ft. Worth, TX: Harcourt Brace Jovanovich College Publishers.

Ettlie, J. E., & O'Keefe, R. D. (1982). Innovative attitudes, values, and intentions in organizations. Journal of Management Studies, 19, 163-182.

Eysenck, H. J. (1983). The roots of creativity: Cognitive ability or personality trait? Roeper Review, 5, 10-12.

Falbo, T. (1977). Multidimensional scaling of power strategies. Personality and Social Psychology, 35, 537-547.

Farr, J. L. (1990). Facilitating individual role innovation. Innovation and creativity at work: Psychological and organizational strategies (pp. 207-230). New York, NY: John Wiley & Sons Ltd.

Farr, J. L., & Ford, C. M. (1990). Individual innovation. In M. A. West & J. I. Farr (Eds.), Innovation and creativity at work: Psychological and organizational strategies (pp. 63-80). New York, NY: John Wiley & Sons Ltd.

Festinger, L. (1957). A Theory of Cognitive Dissonance. Evanston, Illinois: Row Peterson.

Fiorelli, J. S. (1988). Power in work groups: Team member's perspectives. Human Relations, 41, 1-12.

Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention and behavior. Reading, Mass: Addison-Wesley.

French, J. R. P., & Raven, B. H. (1959). The bases of social power. In D. Cartwright (Ed.), Studies in social power (pp. 150-165). Ann Arbor, Mich.: Institute for Social Research, University of Michigan.

French, J. R. P., & Raven, B. H. (1962). The bases of social power. In D. Cartwright (Ed.), Group dynamics: Research and theory (pp. 607-623). Evanston, IL: Row, Peterson.

Friend, K. E. (1982). Stress and performance: Effects of subjective work load and time urgency. Personnel Psychology, 35, 623-633.

Getzels, J. W., & Jackson, P. W. (1962). Creativity and intelligence: Explorations with gifted students. New York: Wiley.

Griffin, R. W. (1983). Objective and social sources of information in task redesign: A field experiment. Administrative Science Quarterly, 28, 184-200.

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. Journal of Educational Psychology, 81, 143-154.

Grolnick, W. S., Ryan, R. M., & Deci, E. L. (1991). Inner resources for school achievement: Motivational mediators of children's perceptions of their parents. Journal of Educational Psychology, 83, 508-517.

Guastello, S. J., Bzdawka, A., Guastello, D. D., & Rieke, M. L. (1992). Cognitive abilities and creative behaviors: CAB-5 and consequences. Journal of Creative Behavior, 26, 260-267.

Haensly, P. A., & Reynolds, C. R. (1989). Creativity and intelligence. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), Handbook of creativity (pp. 111-132). New York City, NY: Plenum.

Hage, J., & Dewar, R. (1973). Elite values versus organizational structure in predicting innovation. Administrative Science Quarterly, 18, 279-290.

Hamner, W. C., & Organ, D. W. (1978). Organizational behavior: An applied approach. Dallas, TX: Business Publications.

Harackiewicz, J. M., & Manderlink, G. (1984). A process analysis of the effects of performance-contingent rewards on intrinsic motivation. Journal of Experimental Social Psychology, 20, 531-551.

Hayes, J. R. (1989). Cognitive Processes in Creativity. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), Handbook of creativity (pp. 135-145). New York City, NY: Plenum.

Hinkin, T .R., & Schriesheim, C. A. (1989). Development and application of new scales to measure the French and Raven (1959) bases of social power. Journal of Applied Psychology, 74, 561-567.

Hinkin, T. R., & Schriesheim, C. A. (1990). Relationships between subordinate perceptions of supervisor influence tactics and attributed bases of supervisory power. Human Relations, 43, 221-237.

Howard, J. A., Blumstein, P., & Schwartz P. (1986). Sex, power, and influence tactics in intimate relationships. Journal of Personality and Social Psychology, 51, 102-109.

Hughes, R. L., Ginnett, R. C., & Curphy, G. J. (1993). Leadership: Enhancing the lessons of experience. Homewood, IL: Richard D. Irwind, Inc.

Humphrey, R. H., O'Malley, P. M., Johnston, L. D., & Bachman, J. G. (1988). Bases of power, facilitation effects, and attitudes and behavior: Direct, indirect, and interactive determinants of drug use. Social Psychology Quarterly, 51, 329-345.

Isaksen, S. G. (1987). Introduction: An orientation to the frontiers of creativity research. In S. G. Isaksen (Ed.), Frontiers of creativity research: Beyond the basics (pp. 1-26). Buffalo, NY: Bearly Limited.

Isen, A. M., & Baron, R. A. (1991). Positive affect as a factor in organizational behavior. Research in Organizational Behavior, 13, 1-53.

Isen, A. M., & Daubman, K. A. (1984). The Influence of affect on categorization. Journal of Personality and Social Psychology, 47, 1206-1217.

Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. Journal of Personality and Social Psychology, 52, 1122-1131.

Isen, A. M., Johnson, M. M. S., Mertz, E., & Robinson, G. F. (1985). The influence of positive affect on the unusualness of word associations. Journal of Personality and Social Psychology, 48, 1-14.

Isen, A. M., & Means, B. (1983). The influence of positive affect on decision-making strategy. Social Cognition, 2, 18-31.

Ivancevich, J. M., & Donnelly J. H. (1970). Leader influence and performance. Personnel Psychology, 23, 539-549.

Izard, C. (1977). Human emotions. New York: Plenum Press.

Johnson, B. T. (1991). Insights about attitudes: Meta-analytic perspectives. Personality and Social Psychology Bulletin, 17, 289-299.

Kanter, R. M. (1983). The change masters. New York: Simon and Schuster .

Kanter, R. M. (1990). The New Workforce Meets the Changing Workplace. In K. Erikson & S. P. Vallas (Eds.), The Nature of Work. New Haven, Conn.: Yale University Press.

Katz, D., & Kahn, R. L. (1978). The social psychology of organizations. New York: Wiley.

Kelman, H. C. (1958). Compliance, identification and internalization: three processes of attitude change. Journal of Conflict Resolution, 2, 21-60.

Kimberly, J. R. (1981). Managerial innovation. In P. C. Nystrom & W. H. Starbuck (Eds.), Handbook of organizational design (pp. 84-104). New York: Oxford University Press.

Kimberly, J. R., & Evanisko, M. J. (1981). Organizational innovation: The influence of individual, organizational and contextual factors on. Academy of Management Journal, 24, 689-713.

Kipnis, D., Schmidt, S. M., Wilkinson, I. (1980). Interorganizational influence tactics: Explorations of getting one's way. Journal of Applied Psychology, 65, 440-452.

Klein, S. B. (1991). Learning. New York: McGraw-Hill.

Koestner, R., Ryan, R., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. Journal of Personality, 52, 233-248.

Koestner. R., Zuckerman, M., & Koestner J. (1987). Praise, involvement and intrinsic motivation. Journal of Personality and Social Psychology, 53, 383-390.

Kolb, J. A. (1992). Leadership of creative teams. Journal of Creative Behavior, 26, 1-9.

Landy, F. J. (1989). Psychology of work behavior. Pacific Grove, CA: Brooks/Cole Publishing Co.

Lawental, E. (1987). Leadership styles of official leaders of interdisciplinary teams and teams' work performances in drug and alcohol abuse treatment programs. Dissertation Abstracts International, 48(4), 1017A.

Lepper, M. R., & Greene, D. (1975). Turning play into work: Effects of adult surveillance and extrinsic rewards on children's intrinsic motivation. Journal of Personality and Social Psychology, 31, 479-486.

Lepper, M. R., & Greene, D. (1978). Overjustification research and beyond: Toward a means-ends analysis of intrinsic and extrinsic motivation. In M. Lepper, & D. Greene (Eds.), The hidden costs of reward. Hillsdale, NJ: Lawrence Erlbaum Associates.

Lepper, M. R., Greene, D., & Nisbett, R. (1973). Undermining children's intrinsic interest with extrinsic rewards: A test of the "overjustification" hypothesis. Journal of Personality and Social Psychology, 58, 259-272.

Littlepage, G., E., Van Hein, J., L., Cohen, K. M., & Janiec, L. L. (1993). Evaluation and comparison of three instruments designed to measure organizational power and influence tactics. Journal of Applied Social Psychology, 23, 107-125.

Martindale, C. (1989). Personality, situation, and creativity. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), Handbook of creativity (pp. 211-232). New York City, NY: Plenum.

McGuire, W. J. (1968). Personality and susceptibility to social influence. In E. F. Borgotta, & W. W. Lambert, (Eds.), Handbook of personality theory and research. Chicago: Rand McNally.

Mossholder, K. W. (1980). Effects of externally mediated goal setting on intrinsic motivation: A laboratory experiment. Journal of Applied Psychology, 65, 202-210.

Nystrom, H. (1979). Creativity and innovation. London: Wilely.

Ouchi, W. G. (1980). Markets, bureaucracies and clans. Administrative Science Quarterly, 25, 129-141.

Pelz, D.C., & Andrews, F. M. (1966). Scientists in organizations. New York: Wiley.

Peters, T. J., & Waterman, R. H. (1982). In search of excellence: Lessons from America's best run companies. New York: Harper and Row.

Pierce, J. L., & Delbecq, A. L. (1976). Organization structure, individual attitudes and innovation. Academy of Management Review, January, 27-37.

Pittman, R. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational versus controlling verbal rewards. Personality and Social Psychology Bulletin, 6, 228-233.

Plant, R., & Ryan, R. M. (1985). Intrinsic motivation and the effects of self-consciousness, self-awareness, and ego-involvement: An investigation of internally controlling styles. Journal of Personality, 53, 435-449.

Podsakoff, P. M., & Schriesheim, C. (1985). Field studies of French and Raven's bases of power: Critique, reanalysis, and suggestions for future research. Psychological Bulletin, 97, 387-411.

Podsakoff, P. M., & Todor, W. D. (1985). Relationships between leader reward and punishment behavior and group processes and productivity. Journal of Management, 11, 55-73.

Podsakoff, P. M., Todor, W. D., & Skov, R. (1982). Effects of leader contingent and non-contingent reward and punishment behaviors on subordinate performance and satisfaction. Academy of Management Journal, 25, 810-821.

Pratt, J. & Jiambalvo, J. (1981). Relationship between leader behaviors and audit team performance. Accounting, Organizations and Society, 6, 133-142.

Reeve, J., Cole, S. G., & Olson, B. C. (1986). Adding excitement to intrinsic motivation research. Journal of Social Behavior and Personality, 1, 349-363.

Reiss, S., & Sushinsky, L. W. (1975). Overjustification, competing responses, and the acquisition of intrinsic interest. Journal of Personality and Social Psychology, 31, 1116-1125.

Rosenfield, D., Folger, R., & Adelman, H. F. (1980). When rewards reflect competence: A qualification of the overjustification effect. Journal of Personality and Social Psychology, 39, 368-376.

Ross, M. (1975). Salience of reward and intrinsic motivation. Journal of Personality and Social Psychology, 32, 245-254.

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. Journal of Personality and Social Psychology, 43, 450-461.

Ryan, R. M. (1993). Current theory and research in motivation. In J. E. Jacobs (Ed.), Nebraska Symposium on Motivation, 1992: Vol. 40. Developmental perspectives on motivation (pp. 1-56). Lincoln: University of Nebraska Press.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. Journal of Personality and Social Psychology, 57, 749-761.

Ryan, R. M., & Deci, E. L. (1989). Bridging the research traditions of task/ego involvement and intrinsic/extrinsic motivation: Comment on Butler (1987). Journal of Educational Psychology, 81, 265-268.

Ryan, R. M., & Grolnick., W. S. (1986). Origins and pawns in the classroom: Self-report and projective assessments of individual differences in children's perceptions. Journal of Personality and Social Psychology, 50, 550-558.

Ryan, R. M., Koestner, R., & Deci, E. L. (1991). Ego-involved persistence: When free-choice behavior is not intrinsically motivated. Motivation and Emotion, 15, 185-205.

Ryan, R. M., Mims, V., & Koestner, R. (1983). Relation of reward contingency and interpersonal context to intrinsic motivation: A review and test using cognitive evaluation theory. Journal of Personality and Social Psychology, 45, 736-750.

Schubert, A. (1973). Intelligence as necessary but not sufficient for creativity. Journal of Genetic Psychology, 122, 45-47.

Shaw, J. I., & Condelli, L. (1986). Effects of compliance and basis of power on the powerholder-target relationship. Personality and Social Psychology Bulletin, 12, 236-246.

Simon, H. (1967). Motivational and emotional controls of cognition. Psychological Review, 74, 29-39.

Slocum, J. W. (1970). Supervisory influence and the professional employee. Personnel Journal, 484-488.

Stahelski, A. J., Frost, D. E., & Patch, M. E. (1989). Use of socially dependent bases of power: French and Raven's theory applied to workgroup leadership. Journal of Applied Social Psychology, 19, 283-297.

Staw, B. M. (1984). Organizational behavior: A review and reformulation of the field's outcome variables. Annual Review of Psychology, 35, 627-66.

Staw. B. M., & Barsade, G. (1993). Affect and managerial performance: A test of the sadder-but-wiser _ happier-and-smarter hypothesis. Administrative Science Quarterly, 38, 304-331.

Sternberg, R. J., & Lubart, T. I. (1991). An investment theory of creativity and its development. Human Development, 34, 1-31.

Thompson, E. P., Chaiken, S., & Hazlewood, J. D. (1993). Need for cognition and desire for control as moderators of extrinsic reward effects: A person X situation approach to the study of intrinsic motivation. Journal of Personality and Social Psychology, 64, 987-999.

Van de Ven, A. H. (1986). Central problems in the management of innovation. Management Science, 32, 590-607.

West, M. A. (1987). Role innovation in the world of work. British Journal of Social Psychology, 26, 305-315.

West, M. A. (1990). The social psychology of innovation in groups. In M. A. West & J. I. Farr (Eds.), Innovation and creativity at work: Psychological and organizational strategies (pp. 305-333). New York, NY: John Wiley & Sons Ltd.

West, M. A., & Farr J. L. (1990). Innovation at work. In M. A. West & J. L. Farr (Eds.), Innovation and creativity at work: Psychological and organizational strategies (pp. 3-13). New York, NY: John Wiley & Sons Ltd.

Wiersma, U. J. (1992). The effects of extrinsic rewards in intrinsic motivation: A meta-analysis. Journal of Occupational and Organizational Psychology, 65, 101-114.

Wilkins, A. L., & Ouchi, W. G. (1983). Efficient cultures: Exploring the relationship between culture and organizational performance. Administrative Science Quarterly, 28, 468-481.

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. Journal of Personality and Social Psychology, 70, 767-779.

Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. Journal of Personality and Social Psychology, 70, 115-126.

Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993). Toward a theory of organizational creativity. Academy of Management Review, 18, 293-321.

Woodman, R. W., & Schoenfeldt, L. F. (1989). Individual differences in creativity: An interactionist perspective. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), Handbook of creativity (pp. 77-92). New York City, NY: Plenum.

Woodman, R. W., & Schoenfeldt, L. F. (1990). An interactionist model of creative behavior. Journal of Creative Behavior, 24, 10-21.

Yukl, G. A. (1994). Leadership in organizations. Englewood Cliffs, NJ: Prentice Hall.

Yukl, G., & Falbe, C. M. (1990). Influence tactics and objectives in upward, downward, and lateral relations. Journal of Applied Psychology, 75, 132-140.

APPENDICES

APPENDIX A

TABLES

Table 1

Table of Terms

Term	Meaning
Attitudes	A tendency to evaluate an object or activity with some degree of like or dislike (Johnson, 1991).
Autonomy-support	A person in an authority role (e.g. a teacher or manager) taking the target persons' (e.g., students' or subordinates') perspective, acknowledging the other's feelings and perceptions, providing the other with information and choice, and minimizing the use of pressure or control (Williams & Deci, 1996).
Creativity	The creation of a valuable, useful, new product, service, idea, procedure, or process by individuals, working alone or together in small groups, in a complex social setting (Amabile, 1988; Woodman et al., 1993).
Innovation	The introduction or application of ideas, processes, products or procedures new to the relevant unit of adoption, which are designed to significantly benefit the individual, group, organization, or wider society (Farr, 1990).
Motivation	
Self-determined Motivation	Motivation that has an internal perceived locus of causality and is experienced as chosen or volitional.
Controlled Motivation	Motivation that is compelled by some external or internal force (e.g., sense of guilt); the individual feels as though s/he has to perform.
Social Power	The degree of control a person or group has over other persons. Power gives a leader the capacity to produce effects on or influence others).
Expert Power	The target's perception that the powerholder has some special knowledge or expertise. (French & Raven, 1959)
Legitimate Power	The target's perception that the powerholder has a legitimate right to prescribe behavior for him or her. (French & Raven, 1959)
Referent Power	The target's identification with the powerholder. (French & Raven, 1959)
Reward Power	The target's perception that the powerholder has the ability to reward him or her. (French & Raven, 1959)
Coercive Power	The target's perception that the powerholder has the ability to punish him or her. (French & Raven, 1959)
Technical Support	Skills, procedures, and knowledge technically relevant to the subordinate's creative efforts.

Table 2

Descriptive Statistics for Principals' and Teachers' Gender

Gender	Count	Percent
Principals		
Males	7	38.89
Females	11	61.11
Teachers		
Males	18	13.64
Females	109	82.58
Not Reported	5	3.78

Table 3

Descriptive Statistics for Age of Principals and Teachers

Age	N	Age	M	SD	Min	Max
Principals	18	Principals	47.94	5.31	40	57
Teachers	126	Teachers	39.49	11.32	23	66

Note. Six teachers did not report their age.

Table 4

Means and Standard Deviations for Teacher Demographic Data

Variable	Count	M	SD	Min	Max
Age	126	39.49	11.32	23	66
Education	132	4.45	.77	4	6
Distinctions	132	1.06	1.68	0	8
Publications	132	.34	.70	0	4
Years Known Principal	128	2.92	3.14	.75	24
Total Years					
Teaching	129	12.01	9.34	.75	34
With School System	129	7.91	7.64	.75	32
With Present School	129	4.44	4.75	.75	24

Note. Count designates number of teachers reporting information.

Table 5

Means and Standard Deviations for Principal Demographic Data (N = 18)

Variable	M	SD	Min	Max
Age	47.94	5.39	40	57
Education	5.53	0.72	5	7
Distinctions	1.18	1.43	0	4
Publications	1.18	2.78	0	11
Total Years				
With School System	15.94	10.44	1	34
With Present School	4.77	3.83	1	17
As a Principal	8.18	3.80	1	
Principal at Present School	3.82	2.16	1	7
Resource Allocation in Dollars	41,250	41,306	10,000	100,000
Staff	90	41.99	25	170
Teachers	51.63	35.27	10	130

Note. Range for Education scale was 1 (some schooling) to 7 (post-doctoral). Post-doctoral studies represent accredited continuing education programs for individuals who poses a doctoral level degree.

Table 6

Sample Items and their Category Assignment for the Development of the Creative Motivation Inventory

Sample Reason	Category
1. Because I enjoy the creative process.	Intrinsic
2. Because I get pleasure from performing creatively at work.	Intrinsic
3. Because creativity is important to my work.	Integrated
4. Because I want to reach my fullest potential.	Integrated
5. Because I think I should and I feel guilty if I don't.	Introjected
6. I feel bad if I do not contribute to my work in creative manner.	Introjected
7. Because I want a promotion/raise.	External
8. Because it is expected of me.	External

Table 7

Distribution of Teacher Responses by School Level

School Level	Surveys Mailed*	Respondents	Response Rate
Elementary	395 (42.61%)	92 (56.79%)	23.29%
Middle School	200 (21.58%)	25 (15.43%)	12.5%
High School	332 (35.81%)	45 (27.78%)	13.55%
Not Reported		14 (7.96%)	
Total	927 (100%)	176 (100%)	18.99%

Note. The total number of surveys mailed does not include 118 mailed to one school that did not distribute the surveys to its teachers.

Table 8

Sample Multiple Regression Analysis: Subordinate Variable Regressed on All Five Leader Social Power Bases.

Variables	Coefficients
Expert Power	Beta 1
Legitimate Power	Beta 2
Referent Power	Beta 3
Reward Power	Beta 4
Coercive Power	Beta 5

Table 9

Hierarchical Set Analysis Procedure for Determining the Mediational Role of Subordinate Variables.

Variables	Step 1	Step 2	Step 3
Antecedent Set			
Expert Power	Beta 1		Beta1'
Legitimate Power	Beta 2		Beta2'
Referent Power	Beta 3		Beta 3'
Reward Power	Beta 4		Beta 4'
Coercive Power	Beta 5		Beta 5'
Mediation Set			
Technical Support		Beta 6	Beta 6'
Self-determined Motivation		Beta 7	Beta 7'
Controlled Motivation		Beta 8	Beta 8'
Attitude		Beta 9	Beta 9'

Note. With subordinate creativity as the dependent variable, the following comparisons are made. For the antecedents that have significant Beta values in Step 1, compare Beta 1 with Beta 1'....Beta 5 with Beta 5'. 1) For antecedents with significant Beta but non-significant Beta' there is complete mediation. 2) For antecedents with both significant Beta and Beta', there is partial mediation only if Beta' is smaller than Beta. If Beta and Beta' are equal then for that antecedent's effect on subordinate creativity is not mediated at all through the subordinate variables. 3) For antecedents with unchanged significance between Beta and Beta', there is an absence of any mediation and the antecedent variables have only direct unmediated effect on subordinate creativity. Lastly, for antecedents that have non-significant Beta values in Step 1 there is no effect on subordinate creativity for a mediator to mediate.

Table 10

Mean, SD, and Coefficient Alpha for Study Independent and Dependent Variables (N = 132).

Variable	M	SD	Coefficient Alpha
Leader Social Power			
Expert Power	3.77	.97	.89
Legitimate Power	4.26	.60	.86
Referent Power	4.25	.92	.94
Reward Power	2.38	.80	.63
Coercive Power	3.27	1.15	.91
Teacher			
Technical Support	3.68	.99	.91
Self-Determined Motivation	3.25	.64	.93
Controlled Motivation	1.90	.54	.87
Attitudes	3.85	.55	.82
Autonomy	3.95	.95	.99
Creativity	3.43	.79	.97

Table 11

Proposed Hypotheses, Accompanied by Listing of Scales Used to Test Hypotheses and Study Outcomes.

Hypothesis		Scales Used to Test Hypothesis	Study Outcome
1.	Use of a leader's expert power to promote creativity will be positively related to the extent to which the subordinate receives technical support.	Expert Power & Technical Support	Supported
2.	The availability of technical support will be positively related to subordinate creativity	Technical Support & ECQ	Supported
3.	The leader legitimate power and subordinate motivation relationship will be moderated by the subordinate's perceived autonomy-supportiveness of the leader.	Legitimate Power & Leader Autonomy-Support	Rejected
4a.	When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be positively related to subordinate external motivation to be creative.	Legitimate Power & External Motivation Scale	NT
4b.	When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be negatively related to subordinate intrinsic motivation to be creative.	Legitimate Power & Intrinsic Motivation	NT
5a.	When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be neither negatively nor positively related to subordinate intrinsic motivation to be creative.	Legitimate Power & Intrinsic Motivation	NT
5b.	When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be positively related to subordinate external motivation to be creative.	Legitimate Power & External Motivation	NT
6.	A subordinate's self-determined motivation to be creative will be positively related to her/his creativity.	Self-determined Motivation and ECQ	Supported
7.	A subordinate's controlled motivations to be creative will be negatively related to her/his creativity.	Controlled Motivation & ECQ	Rejected

Table 11 (Cont.)

Hypothesis		Scales Used to Test Hypothesis	Study Outcome
8.	The leader referent power-subordinate motivation to be creative relationship will be moderated by the subordinate's perceptions of the leader's autonomy-support.	Referent Power & Leader Autonomy-Support	Rejected
9	When a leader is perceived as being autonomous-supportive, use of leader referent power to promote creativity will be positively related to both subordinate intrinsic and integrated motivation to be creative.	Referent Power & Integrated Motivation	NT
10a.	When a leader is perceived as being controlling, use of leader referent power to promote creativity will be positively related to subordinate introjected motivation to be creative.	Referent Power & Introjected	NT
10b.	When a leader is perceived as being controlling, use of leader referent power to promote creativity will be negatively related to subordinate intrinsic motivation to be creative.	Referent Power & Intrinsic Motivation	NT
11.	Use of leader referent power to promote creativity will be positively related to subordinate attitude towards his/her own creativity.	Referent Power & Subordinate Attitude Towards Creativity at Work	Rejected
12.	Subordinate attitude towards their own creativity will be positively related to their creativity.	Subordinate Attitude Towards Creativity at Work & ECQ	Rejected
13.	Use of leader reward power to promote creativity is negatively related to a subordinate's self-determined motivation to be creative.	Reward Power & Self-Determined Motivation	Rejected
14.	Use of leader reward power to promote creativity is positively related to a subordinate's controlled motivation to be creative.	Reward Power & Controlled Motivation	Supported
15.	Use of reward power to promote creativity will be positively related to subordinate attitude towards his/her own creativity.	Reward Power & Subordinate Attitude Toward Creativity at Work	Supported
16.	Use of leader coercive power to promote creativity is negatively related to subordinate self-determined motivation to be creativity.	Coercive Power & Self-Determined Motivation	Rejected
17.	Use of leader coercive power to promote creativity is positively related to subordinate controlled motivation to be creative.	Coercive Power & Controlled Motivation	Rejected

Note. ECQ stands for Employee Creativity Questionnaire.

Table 12

Alternate Hypotheses Proposed In Substitution of 4a, 4b, 5a, 5c, 9, 10a, 10b.

Hypothesis		Measures/Scales Used to Test Hypothesis	Study Outcome
4c.	When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be positively related to subordinate controlled motivation to be creative.	Legitimate Power & Controlled Motivation Scale	Rejected
4d.	When a leader is perceived as being controlling, use of leader legitimate power to promote creativity will be negatively related to subordinate self-determined motivation to be creative.	Legitimate Power & Self-Determined Motivation	Rejected
5c.	When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be neither negatively nor positively related to subordinate self-determined motivation to be creative.	Legitimate Power & Self-Determined Motivation	Rejected
5d.	When a leader is perceived as being autonomy-supportive, use of leader legitimate power to promote creativity will be positively related to subordinate controlled motivation to be creative.	Legitimate Power & Controlled Motivation	Rejected
9a.	When a leader is perceived as being autonomous-supportive, use of leader referent power to promote creativity will be positively related to subordinate self-determined motivation to be creative.	Referent Power & Self-Determined Motivation	Rejected
10c.	When a leader is perceived as being controlling, use of leader referent power to promote creativity will be positively related to subordinate controlled motivation to be creative.	Referent Power & Controlled Motivation	Rejected
10b.	When a leader is perceived as being controlling, use of leader referent power to promote creativity will be negatively related to subordinate self-determined motivation to be creative.	Referent Power & Self-Determined Motivation	Rejected

Table 13

Multiple Regression Analysis: Technical Support Regressed on All Five Leader Social Power Bases (N = 130).

Variables	Coefficients
Expert Power	.75***
Legitimate Power	-.02
Referent Power	.11*
Reward Power	.07
Coercive Power	-.15**
Model R^2	.75
F (5, 124)	74.92

Note. Hypothesis 1 tested using this table.

*p ≤ .05 ** p < .01 ***p < .001

Table 14

Hierarchical Set Analysis for Testing the Mediational Role of Subordinate Variables (N = 130).

Variables	Step 1	Step 2	Step 3
Antecedent Set			
Expert Power	-.26**		-.41***
Legitimate Power	.26***		.22**
Referent Power	.32***		.31***
Reward Power	.09		
Coercive Power	-.07		
Mediation Set			
Technical Support		.17**	.25*
Self-determined Motivation		.20*	.20**
Controlled Motivation		-.12	
Attitude		.14	
Model R^2	.18	.12	.22
F	5.5[a]****	4.1[b]***	7.0[a]****

Note. Hypotheses 2, 6, 7, and 12 tested using this table. In Step 1 subordinate creativity was regressed on the antecedent set. The regression coefficient for each antecedent variable indicates its total effect on subordinate creativity (the dependent variable). In Step 2 subordinate creativity was regressed on the mediational variable set. The regression coefficient for each mediational variable indicates its effect on subordinate creativity. In Step 3 the mediational variable set was added to the antecedent set. However, only those variables with significance level s of .10 or greater from Steps 1 and 2 were included. The resulting antecedent regression coefficients indicate the antecedent variables' direct effects on subordinate creativity.

[a] F (5, 124) [b] F (4, 125)

*p < .10 **p ≤ .05 *** p < .01 ****p < .001

Table 15

Regression Analysis and a Test for Moderation: Subordinate Self-Determined Motivation Regressed on All Five Leader Social Power Bases, Autonomy Support, Plus Interaction Terms (N = 130).

Variables	Step 1	Step 2
Antecedent Set		
Expert Power	-.26*	-.27*
Legitimate Power	.21*	.18
Referent Power	-.18	.02
Reward Power	.10	.08
Coercive Power	-.13	-.16
Autonomy-Support	.33*	.34
Legitimate Power x Autonomy		.01
Referent Power x Autonomy		.24
Model R^2	.07	.09
F	1.53[a]	1.57[b]

Note. Hypotheses 3, 4d, 5c, 8, 9c, 10d, 13 and 16 tested using this table. In Step 1 subordinate self-determined motivation was regressed on the five leader power bases, and the hypothesized moderator, autonomy-support. In Step 2 the two interaction terms, legitimate power x autonomy-support and referent power x autonomy-support, were added to the regression equation. The significance of the regression coefficients of these interaction terms were used to determine whether moderation existed within the model.

[a] $F(6, 123)$ [b] $F(8, 121)$

*$p \leq .05$

Table 16

Regression Analysis and a Test for Moderation: Subordinate Controlled Motivation Regressed on All Five Leader Social Power Bases, Autonomy Support, Plus Interaction Terms (N = 130).

Variables	Step 1	Step 2
Antecedent Set		
Expert Power	-.05	-.08
Legitimate Power	.12	.10
Referent Power	-.08	.05
Reward Power	19*	.19*
Coercive Power	-.06	-.04
Autonomy-Support	.12	.13
Legitimate Power x Autonomy		-.06
Referent Power x Autonomy		.16
Model R^2	.06	.07
F	1.33[a]	1.14[b]

Note. Hypotheses 3, 4c, 5d, 8, 10c, 14 and 17 tested using this table. In Step 1 subordinate controlled motivation was regressed on the five leader power bases, and the hypothesized moderator, autonomy-support. In Step 2 the two interaction terms, legitimate power x autonomy-support and referent power x autonomy-support, were added to the regression equation. The significance of the regression coefficients of these interaction terms were used to determine whether moderation existed within the model.

[a] F (6, 123) [b] F (8, 121)

*$p \leq .05$

Table 17

Multiple Regression Analysis: Subordinate Attitude Towards Creativity at Work Regressed on All Five Leader Social Power Bases (N = 130).

Variables	Coefficients
Expert Power	-.21*
Legitimate Power	.21**
Referent Power	.13
Reward Power	.21**
Coercive Power	-.01
Model R^2	.10
F (5, 124)	2.64**

Note. Hypotheses 11, and 15 tested using this table.

*$p < .10$ **$p \leq .05$

Table 18

Summary Table of Study's Significant Findings.

	EP	LP	REFP	REWP	CP	TECH	SELF	CTRL	ATT	SC
EP						+	-			-
LP							+		+	+
REFP						+				+
REWP								+	+	
CP						-				
TECH										+
SELF										+
CTRL										
ATT										
SC										

Note. The abbreviations above represent the following terms: EP (Expert Power), LP (Legitimate Power), REFP (Referent Power), REWP (Reward Power), CP (Coercive Power), TECH (Technical Support Availability), SELF (Self-determined Motivation), CTRL (Controlled Motivation), ATT (Teacher Attitudes Towards Being Creative at Work), SC (Subordinate Creativity). A "+" indicates a significant positive relationship found between the two variables, while a "-" indicates a significant negative relationship was found between the two indicated variables.

APPENDIX B

FIGURES

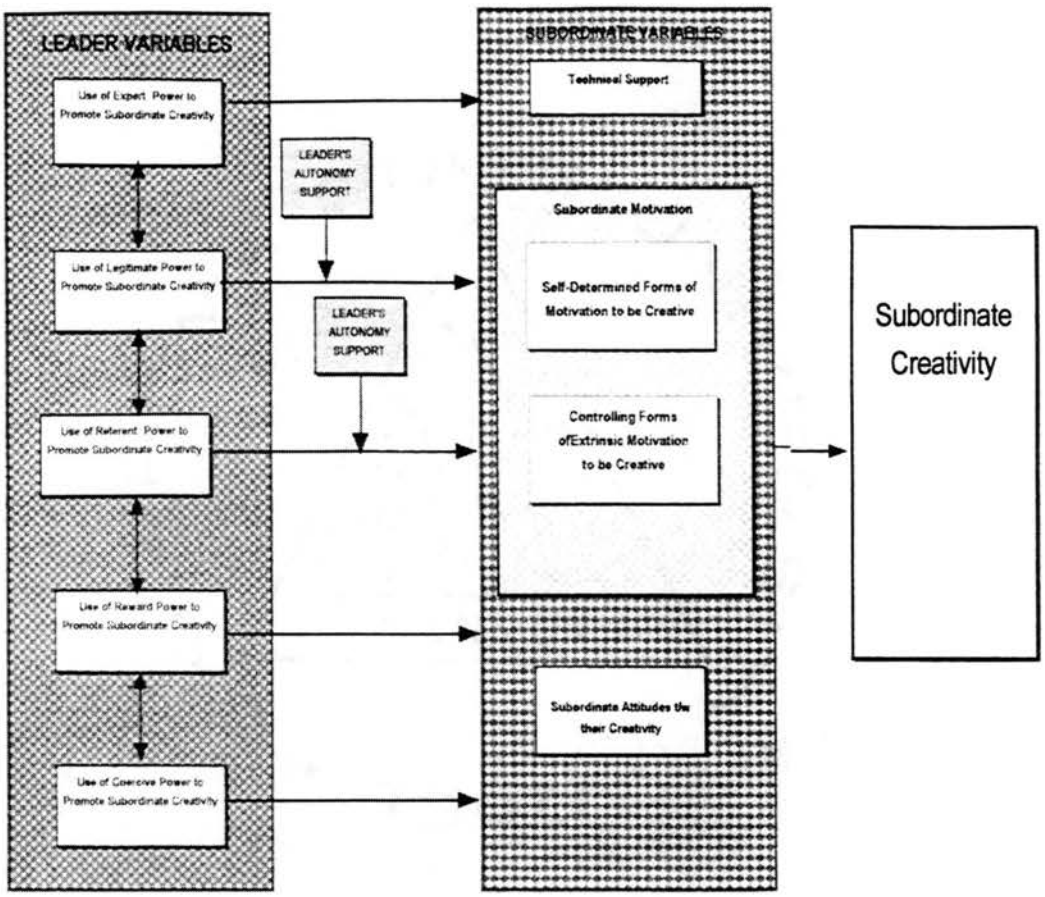

Figure 1. Model of leader social power and subordinate creativity.

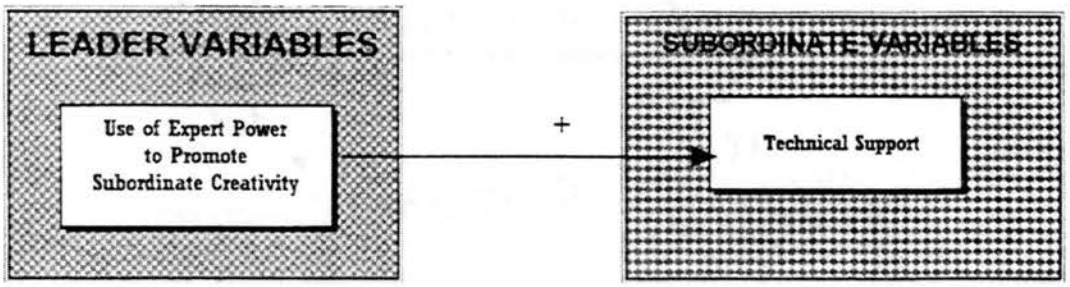

Figure 2. Leader expert power and technical support.

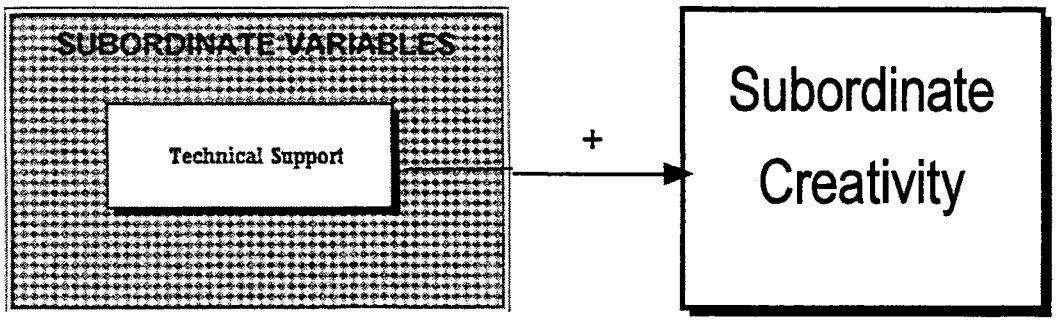

Figure 3. Technical support and subordinate creativity.

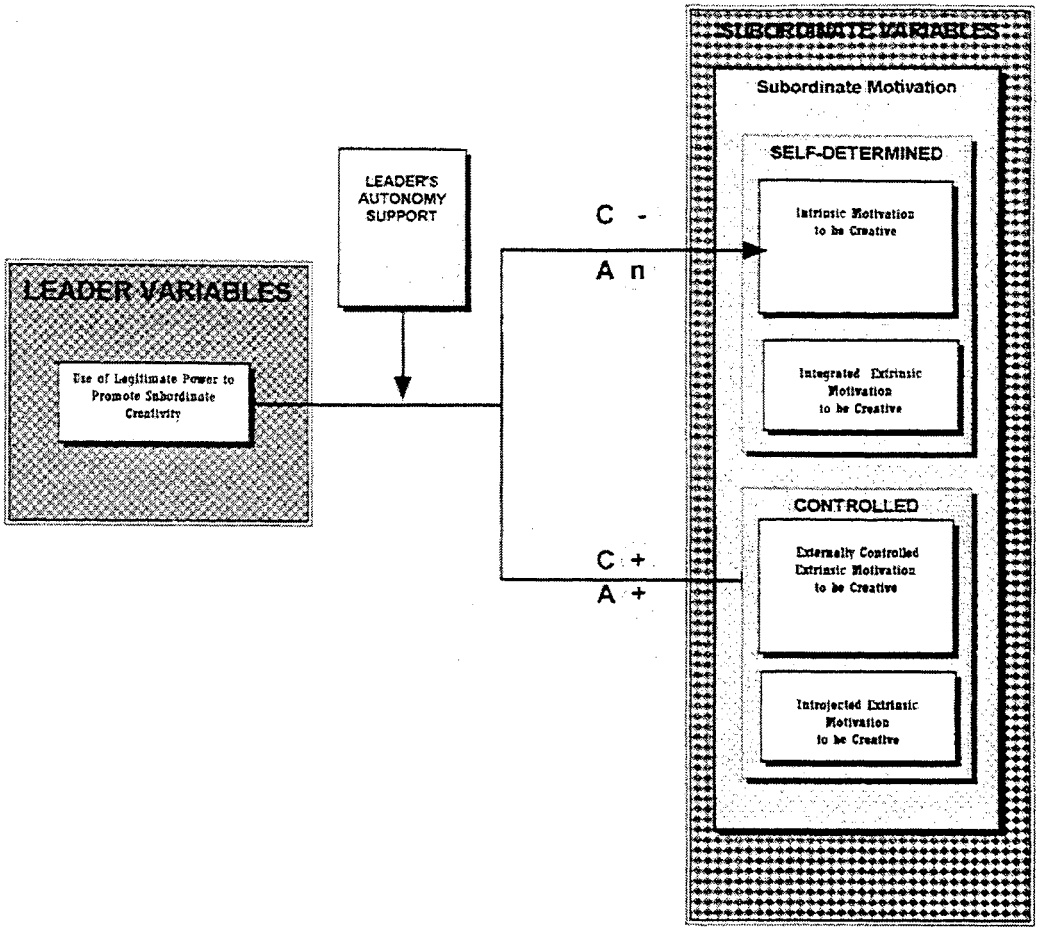

Figure 4. Leader legitimate power and subordinate motivation to be creative at work.

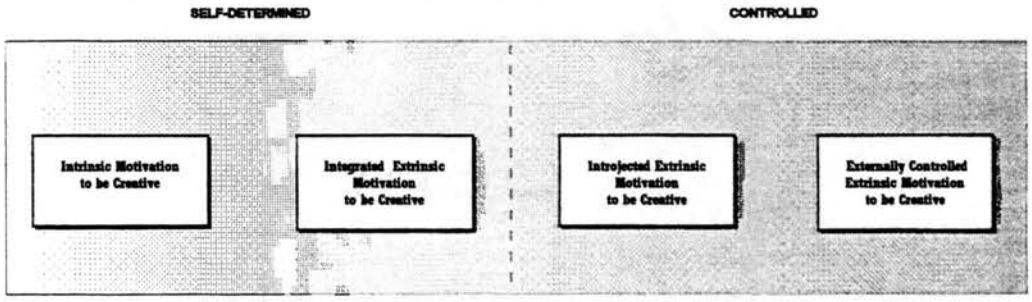

Figure 5. Perceived locus of control continuum.

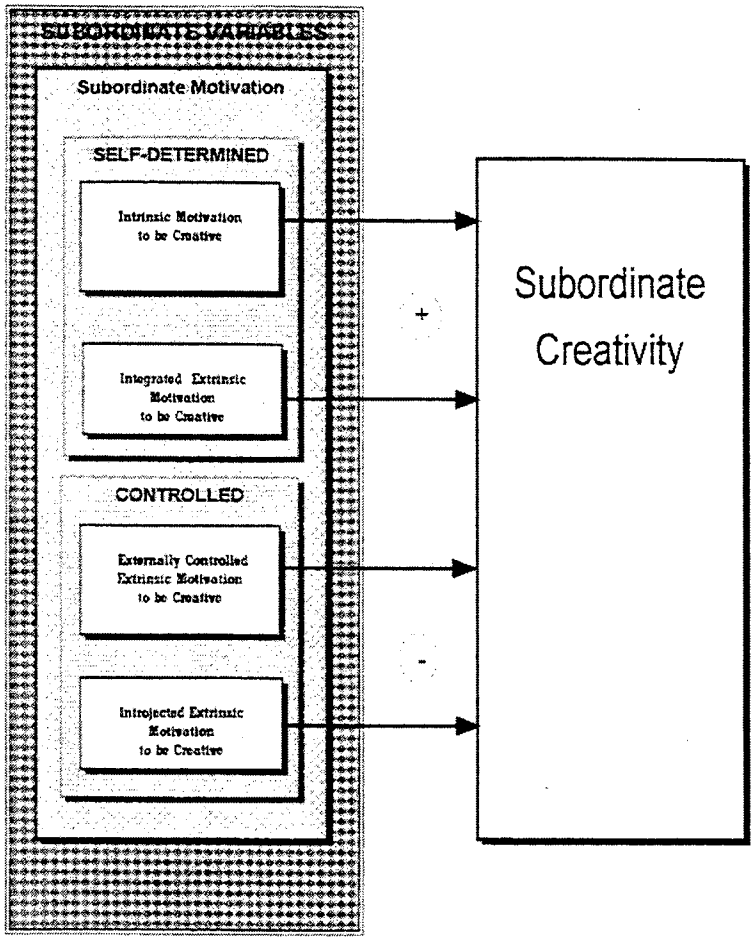

Figure 6. Subordinate motivation to be creative at work and subordinate creativity.

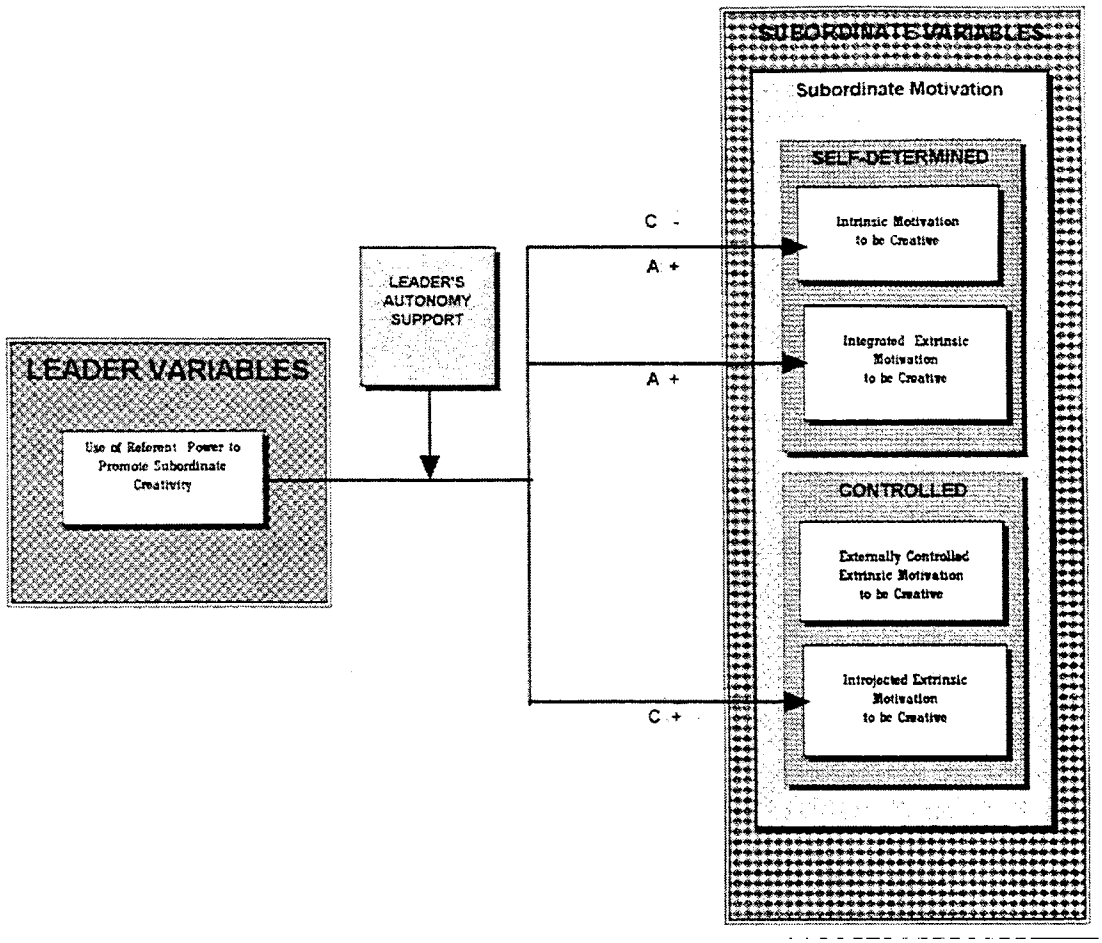

Figure 7. Leader referent power and subordinate motivation to be creative at work.

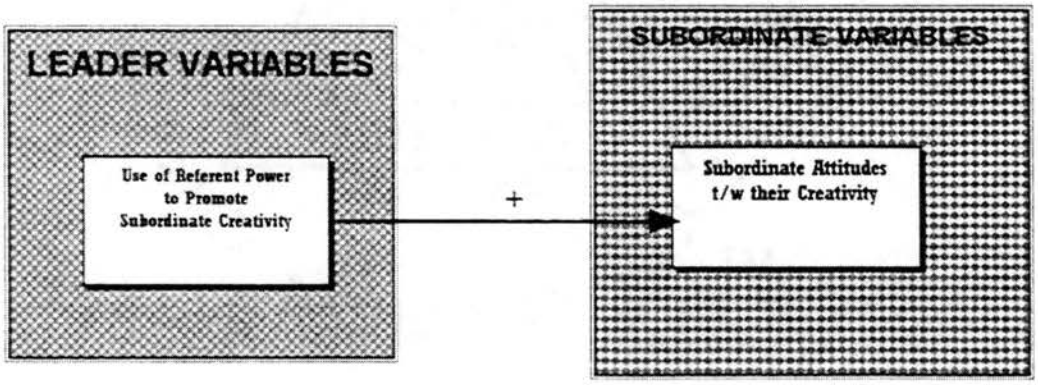

Figure 8. Leader referent power and subordinate attitude towards performing creatively at work.

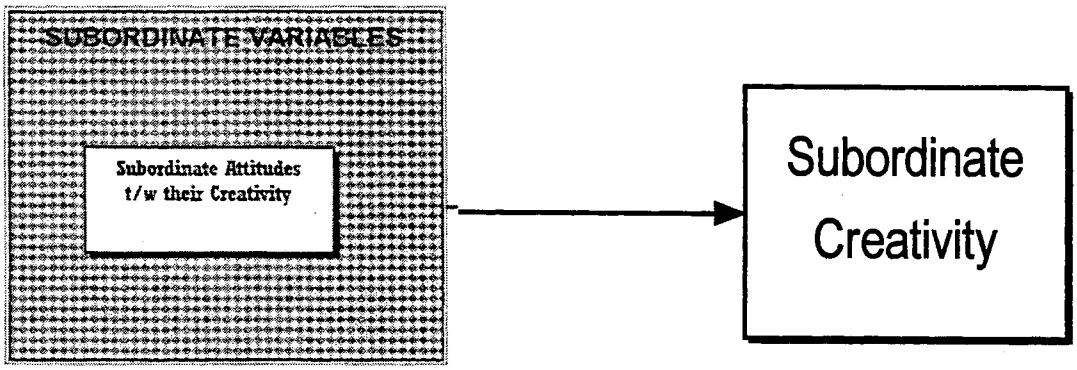

Figure 9. Subordinate attitude towards performing creatively at work and subordinate creativity.

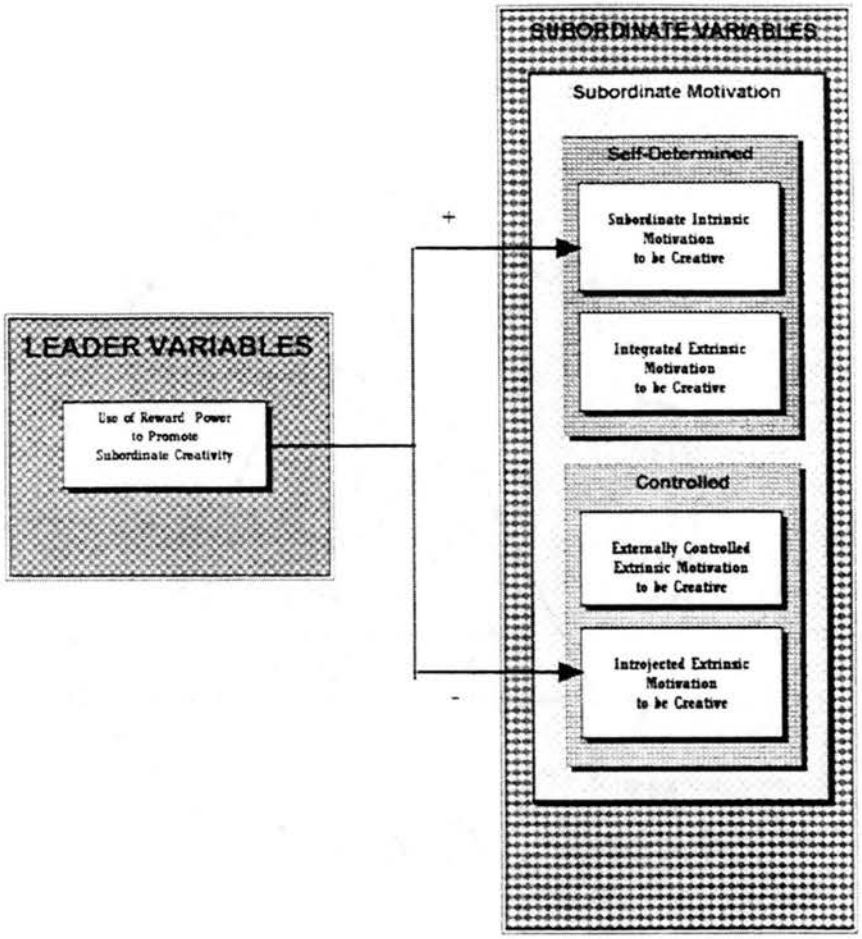

Figure 10. Leader reward power and subordinate motivation to be creative at work.

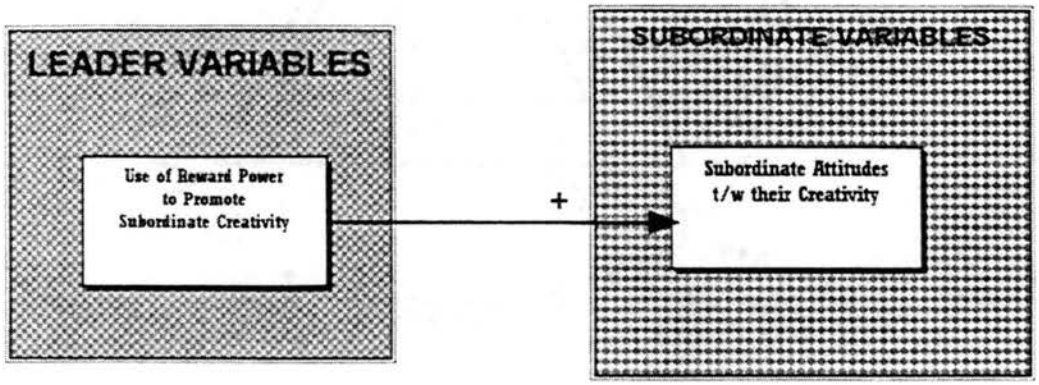

Figure 11. Leader reward power and subordinate attitude towards performing creatively at work.

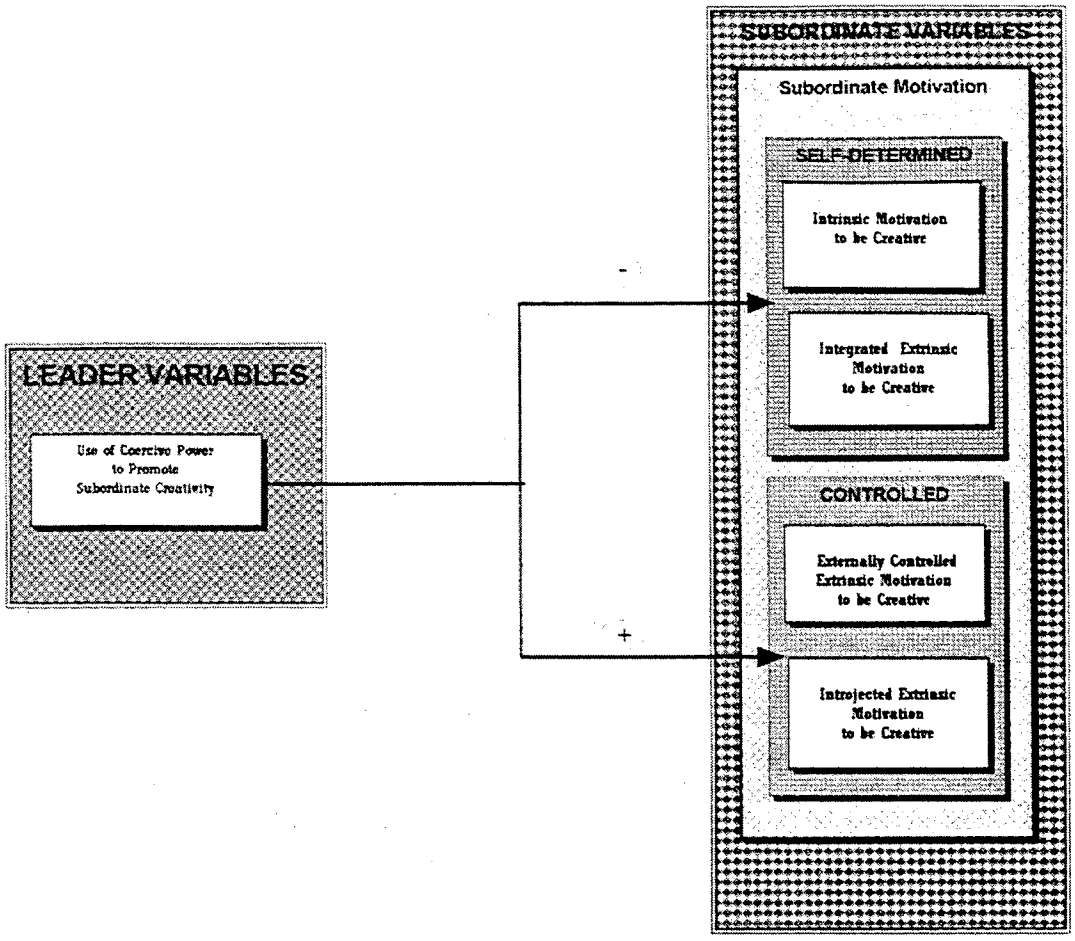

Figure 12. Leader coercive power and subordinate motivation to be creative at work and subordinate creativity.

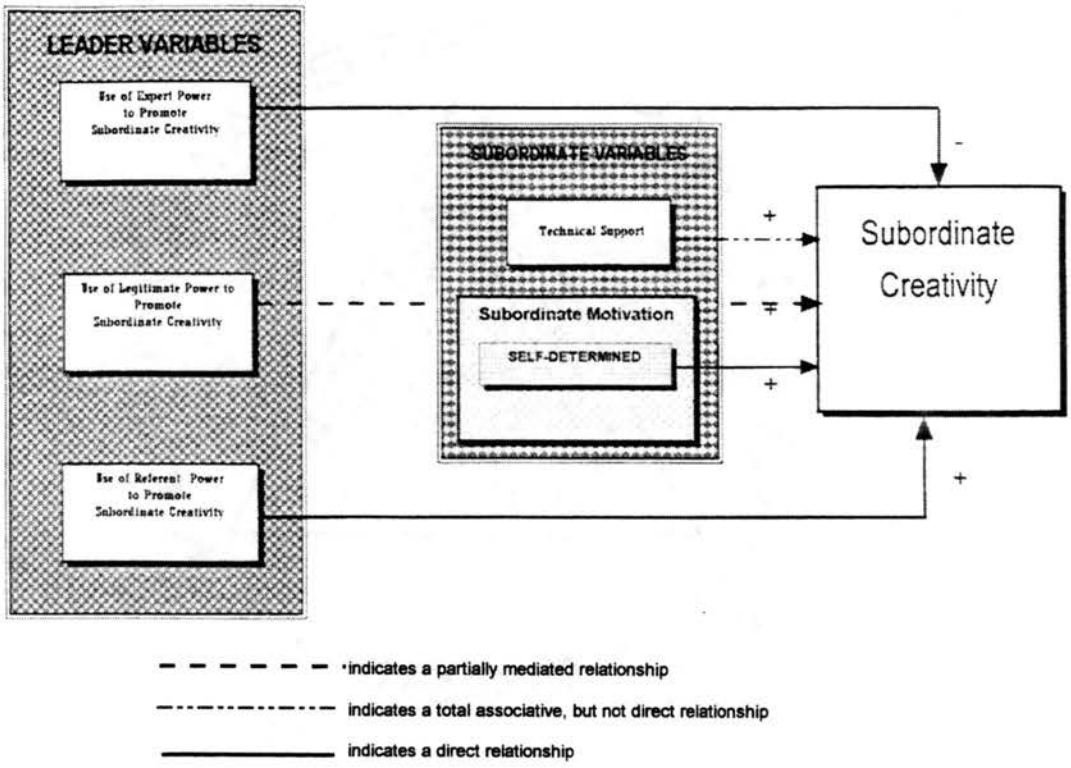

Figure 13. Model of leader social power and subordinate creativity based upon study outcomes.

APPENDIX C

SOLICITATION LETTER FOR SCHOOL PARTICIPATION

OKLAHOMA STATE UNIVERSITY
DEPARTMENT OF PSYCHOLOGY

November 6, 1998

Principal's Name
School Street Address
City, State Zip

Dear Principal's Name:

I am a Ph.D. candidate in Experimental Psychology at Oklahoma State University, and am a North Mecklenburg High School graduate (1986). I am currently pursing my dissertation research and would like to request your participation and support. In order to determine whether it will be possible to utilize ~Name of School~ as a data collection site, I provide you with the following overview of my study. Please note this study has been reviewed and approved by the Charlotte Mecklenburg School System's Department of Instructional Accountability, and my university's Institutional Review Board.

Purpose of the Study: The proposed research will explore how different principals' leadership styles impact teacher creativity.

Importance of this Study: ***Improved teacher effectiveness within the classroom.*** As classroom populations grow and diversify, teachers confront the endless challenge of how to enroll students in the learning process. This challenge requires teachers to be creative in their approaches and presentations of core curriculum materials in order to be effective. The present study investigates one of the most promising avenues for influencing and improving teacher creativity—the leadership provided by principals.

Participation Requirements: The study requires the participation of 30 principals and 300 teachers throughout the CMS. Teachers within participating schools will complete a brief (15 to 20 minutes) survey which includes a) a demographic information sheet, and b) a series of questions which address how his/her principal promotes creative performance at work, and the teacher's views about performing creatively at work. Principals from these schools will, in turn, complete a brief (15 to 20 minutes max.) survey packet which asks them to evaluate the creativity of twelve, randomly selected, teachers under their direction.

Confidentiality: Participant confidentiality is of the utmost importance. Surveys will be coded in such a way that only the researcher (myself) will be able to identify and pair survey data with the school from which it is collected. Upon completion, each coded survey will be returned directly to me via a provided, self-addressed-stamped envelope. These procedures will be taken to protect the integrity and confidentiality of all participants' responses. Thereby, at no point will individual responses be accessible to any CMS faculty, staff, or administrative personnel. Only the cumulative results of the study will be shared.

Benefits to you and your teachers: ***Quality of Instruction.*** Yours and your teachers' participation in the presented study will afford you the opportunity to gain a new perspective on how to improve the invaluable resource of teacher creativity. In return for participation, I will provide an executive summary of the cumulative research results within 90 days of data collection. This evaluation will include information regarding how different leadership approaches affect a) teacher motivation to be creative, and b) teacher attitudes towards personal creative performance within the classroom.

Commitment to Participate: Mr./Ms. ~Principal's Name~, at this time I request your support as a participant and permission to utilize ~School Name~ as one of my 30 needed data collection sites. Your personal commitment to the study will entail the 15-20 minutes required to complete and mail the Principal's Survey Packet. As a participating school, each of your teachers will be asked to complete and return the 15-20 minutes Teacher Survey Packet. Resulting from this teacher solicitation, I hope to achieve a minimum 20% response rate.

Mr./Ms. ~Principal's Name~ thank you for your time and consideration. I hope you will choose to participate in this meaningful study.* Should you have any questions please do not hesitate to contact me at PMEDINA@aol.com or by mail at 12801 Westmoreland Rd., Huntersville, N.C., 28078. Also, you may contact my dissertation advisor, Dr. Ken Eastman (405-744-8646/e-mail eastman@okway.okstate.edu) or Ms. Lynn McRae, CMS Instructional Accountability (379-7050).

Thank you for considering this professional contribution to the study of psychology and educational science. I look forward to hearing from you soon.

Sincerely,

Phyllis L. Medina, M.S.
Oklahoma State University
Stillwater, OK

*Please use the enclosed self-addressed stamped postcard to indicate your decision to participate in this study.

215 N. MURRAY • STILLWATER, OK • 74078
PHONE: 405-744-6028 • FAX: 405-744-8067

APPENDIX D

COVER LETTERS FOR SURVEY MATERIALS

COVER LETTER FOR TEACHER SURVEY MATERIALS

OKLAHOMA STATE UNIVERSITY
DEPARTMENT OF PSYCHOLOGY

November 6, 1998

Dear ~ School's Name ~ School Teacher:

I am a Ph.D. candidate in Experimental Psychology at Oklahoma State University, and am a North Mecklenburg High School graduate (1986). I would like to request your participation in my dissertation research. The study explores how different principals' leadership styles impact teacher creativity. *This research has been approved by the Charlotte Mecklenburg School System's Department of Instructional Accountability, your principal, and by Oklahoma State University's Institutional Review Board.*

Please participate by completing the enclosed survey packet. The packet contains a) a brief demographic information sheet, and b) a series of questions which address how your principal promotes your performing creatively at work, and your views about your performing creatively at work. It will take approximately 10 minutes to complete the entire survey packet.

In return for your participation, I will send you an executive summary of the study's cumulative results. This will include an evaluation of how principal influence tactics are used to promote teacher creativity.

Confidentiality of your responses: Participant confidentiality is of the utmost importance. Your survey will be alpha-numerically coded in such a way that only the researcher (myself) will able to identify and pair the data with the school from which it is collected. This procedure will protect the integrity and confidentiality of all participants' responses. Additionally, at no point will individual findings or responses be accessible to any CMS faculty, staff, or administrative personnel. Nor, will they be written, published, or released in any other form. Only the cumulative results of the study will be shared.

Please note a maximum response rate is essential for the validity of the findings from this research. Please complete the survey material during your regular working hours. After completing the survey packet, please return it to me in the self-addressed stamped envelope provided. Please place your completed survey in the mail by June 18, 1998.

Thank you for considering this professional contribution to psychology and educational science. Should you have questions regarding this study at any time please contact me via e-mail, PMEDINA@aol.com, or regular mail, Oklahoma State University, 215 N. Murray, Stillwater, OK 74078.

Sincerely,

Phyllis L. Medina, M.S.
Oklahoma State University
Stillwater, OK.

215 N. MURRAY • STILLWATER, OK • 74078
PHONE: 405-744-6028 • FAX: 405-744-8067

COVER LETTER FOR PRINCIPAL SURVEY MATERIALS

OKLAHOMA STATE UNIVERSITY
DEPARTMENT OF PSYCHOLOGY

November 6, 1998

Dear «Title» «Last_Name»:

Thank you for your continued support as I work to complete my dissertation research. The enclosed materials represent the final phase of the data collection process.

Please complete and return the enclosed survey packet. The packet contains a) a brief personal information sheet, and b) individual Employee Creativity Questionnaires for teachers under your direction who are participating in the study. Each Employee Creativity Questionnaire should not take more than one and a half minutes to complete. After completing the survey packet, please return all survey materials in the provided self-addressed stamped envelope. Please place your completed materials in the mail by July 31, 1998.

Upon receipt of these materials I will begin my data analysis. Hopefully, within 90 days following receipt of all Principal Survey Packets I will send you an executive summary of the results. This will include an evaluation of leader influence tactics used to promote teacher creativity.

Your responses will be kept strictly confidential. No findings or responses that can be traced to any individual will be written, published, or released in any other form.

Sincerely,

Phyllis L. Medina, MS
Oklahoma State University
Stillwater, OK

215 N. MURRAY • STILLWATER, OK • 74078
PHONE: 405-744-6028 • FAX: 405-744-8067

APPENDIX E

TEACHER SURVEY MATERIALS

TEACHER DEMOGRAPHIC SURVEY

Demographic Information Sheet

Gender: Female Male

Age: _____

Subject matter taught: _____

Total years teaching: _____

Years with present school system: _____

Years with present school: _____

Number of people in your immediate work group (i.e., grade/subject matter taught): _____

Numbers of years have known principal: _____

Highest level of education completed: _____

1) High School 2) Some college (no degree) 3) Associates 4) Bachelor 5) Masters 6) Ph.D. 7) Post-Doc

Number of publications: _____

Performance awards & other distinctions:

_____

_____

_____

_____

_____

_____

LEADER SOCIAL POWER INSTRUMENT

I. **Instructions:** *Below is a list of statements which may be used in describing behaviors principals may direct toward their teachers. First carefully read each descriptive statement, thinking in terms of your principal. Then decide to what extent you agree that your principal could do this to you. Circle the number which most closely represents how you feel. Use the following numbers for your answers.*

(1) = Strongly disagree
(2) = Disagree
(3) = Neither agree nor disagree
(4) = Agree
(5) = Strongly agree

My principal can...

1. give me good technical suggestions.	1	2	3	4	5
2. make me feel that I have commitments to meet.	1	2	3	4	5
3. make me feel valued.	1	2	3	4	5
4. increase my pay level.	1	2	3	4	5
5. give me undesirable job assignments.	1	2	3	4	5
6. share with me his/her considerable experience and/or training.	1	2	3	4	5
7. make me feel like I should satisfy my job requirements.	1	2	3	4	5
8. make me feel like he/she approves of me.	1	2	3	4	5
9. influence my getting a pay raise.	1	2	3	4	5
10. make my work difficult for me.	1	2	3	4	5
11. provide me with sound job-related advice.	1	2	3	4	5
12. give me the feeling I have responsibilities to fulfill.	1	2	3	4	5
13. make me feel personally accepted.	1	2	3	4	5
14. provide me with special benefits.	1	2	3	4	5
15. make things unpleasant here.	1	2	3	4	5
16. provide me with needed technical knowledge.	1	2	3	4	5
17. make me recognize that I have tasks to accomplish.	1	2	3	4	5
18. make me feel important.	1	2	3	4	5
19. influence my getting a promotion.	1	2	3	4	5
20. make being at work distasteful.	1	2	3	4	5

SUBORDINATE ATTITUDE TOWARDS CREATIVITY SCALE

II. **Instructions:** *Indicate the degree to which you agree with the following statements. Circle the number that most closely represents how you feel. Use the following numbers for your answers.*

(1) = Strongly disagree
(2) = Disagree
(3) = Neither agree nor disagree
(4) = Agree
(5) = Strongly agree

21.	I try new ideas and new approaches to problems.	1	2	3	4	5
22.	I take things or situations apart to find out how they work.	1	2	3	4	5
23.	Among my colleagues and coworkers, I will be the first or nearly the first to introduce a new idea or method.	1	2	3	4	5
24.	I demonstrate originality.	1	2	3	4	5
25.	I will work on a problem which has caused others great difficulty.	1	2	3	4	5
26.	I make time to pursue my own pet ideas or projects.	1	2	3	4	5
27.	I budget funds/resources for the pursuit of a risky idea.	1	2	3	4	5
28.	It is important to think broadly about one's work and project goals.	1	2	3	4	5
29.	I work with project teams designed to solve complex problems.	1	2	3	4	5
30.	I frequently depart from organizational routine.	1	2	3	4	5

TECHNICAL SUPPORT SCALE

III. *Please, indicate how strongly you agree or disagree with the following statements.*

(1) = Strongly disagree
(2) = Disagree
(3) = Neither agree nor disagree
(4) = Agree
(5) = Strongly agree

31. My principal shares his/her personal knowledge that is relevant to my work.	1	2	3	4	5
32. My principal demonstrates procedures to me that are relevant to my work.	1	2	3	4	5
33. My principal shares personal skills with me that support my work.	1	2	3	4	5
34. My principal makes available technical support (i.e., knowledge, procedures, and skills) necessary and relevant to my work.	1	2	3	4	5

LEADER AUTONOMY SUPPORT SCALE

IV. **Instructions:** *Below is a list of statements that may be used in describing how principals may respond to their teachers. First carefully read each descriptive statement, thinking in terms of your principal. Then decide to what extent you agree that your principal does these things. Circle the number that most closely represents how you feel. Use the following numbers for your answers.*

(1) = Strongly disagree
(2) = Disagree
(3) = Neither agree nor disagree
(4) = Agree
(5) = Strongly agree

35. I feel that my principal provides me with choices and options.	1	2	3	4	5
36. I feel understood by my principal.	1	2	3	4	5
37. I am able to be open with my principal.	1	2	3	4	5
38. My principal conveys confidence in my ability to make necessary changes.	1	2	3	4	5
39. I feel that my principal accepts me.	1	2	3	4	5
40. My principal makes sure I really understand the goals of the school and what I need to do.	1	2	3	4	5
41. My principal encourages me to ask questions.	1	2	3	4	5
42. I feel a lot of trust in my principal.	1	2	3	4	5
43. My principal answers my questions fully and carefully.	1	2	3	4	5
44. My principal listens to how I would like to do things.	1	2	3	4	5
45. My principal handles people's emotions very well.	1	2	3	4	5
46. I feel that my principal cares about me as a person.	1	2	3	4	5
47. I do not feel very good about the way my principal talks to me.	1	2	3	4	5
48. My principal tries to understand how I see things before suggesting a new way to do things.	1	2	3	4	5
49. I feel able to share my feelings with my principal.	1	2	3	4	5

CREATIVITY MOTIVATION INSTRUMENT

V. **Instructions:** *Please rate each item in terms of how true it is of you. Please circle one and only one letter for each response to the indicated question according to the following scale.*

(N) = Never or almost never true of you
(S) = Sometimes true of you
(O) = Often true of you
(A) = Always or almost always true of you

50. Why might you work on a project from work during your free time or after work hours?

a. Because I enjoy seeing the project completed.	N	S	O	A
b. Because I will feel bad about myself if I do not.	N	S	O	A
c. Because it's fun.	N	S	O	A
d. Because there are extrinsic benefits (e.g., recognition, financial rewards, etc.).	N	S	O	A

51. Why are you motivated to seek novel approaches to your work?

a. Because I know novel solutions are sometimes very relevant to my work.	N	S	O	A
b. To avoid feelings of failure when I don't.	N	S	O	A
c. Because I enjoy the challenge.	N	S	O	A
d. Because that is what is expected of me.	N	S	O	A
e. Because original thinking helps me reach personal work related goals.	N	S	O	A
f. Because I want others to notice me.	N	S	O	A
g. Because it is fun.	N	S	O	A
h. Because there are financial benefits.	N	S	O	A
i. Because I think it is important to seek new approaches when possible.	N	S	O	A
j. Because I pressure myself to move beyond the "status quo."	N	S	O	A
k. To avoid getting demoted or fired.	N	S	O	A
l. Because developing an original idea is important to me.	N	S	O	A
m. Because I want my peers to think I am intelligent.	N	S	O	A
n. Because I want my principal to think I am a good employee.	N	S	O	A
o. Because I think it is important to show I give my 110 percent.	N	S	O	A

CREATIVITY MOTIVATION INSTRUMENT

V. 52. Why are you creative at work?

a. Because creativity is important to my work.	N	S	O	A
b. Because I pressure myself to seek novel or tendsetting ideas at work.	N	S	O	A
c. Because I get pleasure from performing creatively at work.	N	S	O	A
d. So others will not get mad at me.	N	S	O	A
e. Because it is important to me, personally.	N	S	O	A
f. Because I think I should and I feel guilty if I don't.	N	S	O	A
g. Because it is fun.	N	S	O	A
h. Because I want a promotion/raise.	N	S	O	A
i. To try out/ test some of my own ideas.	N	S	O	A
j. I feel bad if I do not contribute to my work in creative manner.	N	S	O	A
k. Because I will get in trouble if I am not creative at work.	N	S	O	A
l. Because I want to reach my fullest potential.	N	S	O	A
m. Because I am disappointed in myself if my work performance fails to help me reach personal goals.	N	S	O	A
n. Because it is expected of me.	N	S	O	A
o. Because I enjoy the creative process.	N	S	O	A
p. Because it is a good way to express myself through my work.	N	S	O	A
q. So my principal will not reprimand me.	N	S	O	A
r. I choose to be creative at work because I want to be successful in my career.	N	S	O	A
s. Because it bothers me when I am not creative at my work.	N	S	O	A
t. Because that is the unwritten rule.	N	S	O	A

53. Number of hours, beyond regular school hours, spent per week developing lesson plans, materials, etc.?

0-3 3.5-6 6.5-9 9.5-12 12.5-15 15.5-18 18.5-21 21.5-24 24.5-27 27.5-30 30+

APPENDIX F

PRINCIPAL SURVEY MATERIALS

PRINCIPAL DEMOGRAPHIC SURVEY

Demographic Information Sheet (L)

Gender: Female Male

Age: _____

Title: _____

Total years as a principal: _____

Years with present school system: _____

Years with present school: _____

Total years as principal at current school: _____

Number of people/staff under your direction: _____

Number of teachers under your direction: _____

Approx. value of resources you are authorized to commit for the school (optional): _____

Highest level of education completed:

1) High School 2) Some college (no degree) 3) Associates 4) Bachelor 5) Masters 6) Ph.D. 7) Post-Doc

Number of publications: _____

Performance awards & other distinctions:

_____

_____

_____

_____

_____

EMPLOYEE CREATIVITY QUESTIONNAIRE

Employee Creativity Questionnaire

The following presents a set of bipolar adjective word pairs which describe products produced (i.e., physical objects, theoretical systems, new techniques, processes, or ideas) and behaviors performed by your subordinate. Within the context of your industry and the goals of your organization, please rate the performance of your subordinate and the products s/he produces. When making your evaluation consider the employee's work as it compares to the performance, ideas, and products made by people with similar experience and training. For example, "Employee 1's work, ideas, products are ___ in comparison to those made by people with similar experience and training."

Teacher Reviewed: I.D. CODE _____

Please be careful to match the teacher ID Code with the correct questionnaire.

1.	Commonplace	1	2	3	4	5	Novel
2.	Dated	1	2	3	4	5	Trendsetting
3.	Rehearsed	1	2	3	4	5	Spontaneous
4.	Anticipated	1	2	3	4	5	Startling
5.	Unimaginative	1	2	3	4	5	Unusual
6.	Typical	1	2	3	4	5	Unique
7.	Traditional	1	2	3	4	5	Revolutionary
8.	Predictable	1	2	3	4	5	Surprising
9.	Conventional	1	2	3	4	5	Original
10.	Boring	1	2	3	4	5	Interesting
11.	Ordinary	1	2	3	4	5	Amazing
12.	Conservative	1	2	3	4	5	Radical
13.	Garden Variety	1	2	3	4	5	Ingenious
14.	Status Quo	1	2	3	4	5	Risky
15.	Not Creative	1	2	3	4	5	Creative

APPENDIX G

INSTITUTIONAL REVIEW BOARD APPROVAL DOCUMENTATION

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD
HUMAN SUBJECTS REVIEW

Date: 05-31-98 **IRB #: AS-98-064**

Proposal Title: LEADER SOCIAL POWER AND SUBORDINATE CREATIVITY

Principal Investigator(s): Ken Eastman, Phyllis L. Medina

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved

ALL APPROVALS MAY BE SUBJECT TO REVIEW BY FULL INSTITUTIONAL REVIEW BOARD AT NEXT MEETING, AS WELL AS ARE SUBJECT TO MONITORING AT ANY TIME DURING THE APPROVAL PERIOD.
APPROVAL STATUS PERIOD VALID FOR DATA COLLECTION FOR A ONE CALENDAR YEAR PERIOD AFTER WHICH A CONTINUATION OR RENEWAL REQUEST IS REQUIRED TO BE SUBMITTED FOR BOARD APPROVAL.
ANY MODIFICATIONS TO APPROVED PROJECT MUST ALSO BE SUBMITTED FOR APPROVAL.

Comments, Modifications/Conditions for Approval or Disapproval are as follows:

Signature: Date: June 2, 1998

Chair of Institutional Review Board
cc: Phyllis L. Medina

VITA

Phyllis Laine Medina

Candidate for the Degree of

Doctor of Philosophy

Thesis: LEADER SOCIAL POWER AND SUBORDINATE CREATIVITY

Major Field: Psychology

Biographical:

Personal Data: Born in Chester, Pennsylvania, On June 12, 1968, the daughter of Harrison Walter and W. Dianne Snyder. Married in Tulsa, Oklahoma, On January 4, 1988, to Jose R. Medina. My husband's and my first child, Joseff Anthony Medina, was born in Okinawa, Japan, On March 18, 1998.

Education: Graduated from North Mecklenburg High School, Huntersville, North Carolina, in June 1986; received Bachelor of Arts degree in Psychology, a Minor degree in Business Administration, and a Minor degree in Spanish from Oklahoma State University, Stillwater, Oklahoma in December 1990; received Masters of Science degree in Psychology from Oklahoma State University in May 1993. Completed the requirements for the Doctor of Philosophy degree with a major in Psychology at Oklahoma State University in December 1999.

Experience: Employed by Oklahoma State University, Department of Psychology as a graduate research and teaching assistant, 1991 to 1992, and 1993 to 1995, respectively; intern for the Center for Applied Cognitive Studies, Charlotte, North Carolina, December 1992 to May 1993; intern for Joy Reed Belt and Associates, Oklahoma City, Oklahoma, October 1993 to March 1995.