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Cristina M. Giannantonio, Ph.D.

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Influential Factors in Individual Readiness for Change

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Effectively managing change is one of the most critical challenges organizations face today. Increasing the readiness for change of employees may be one of the most important interventions an organization can initiate. This study investigated the relationship between an employee's readiness for change and his or her margin in life (MIL). MIL is based on McClusky's (1963) theory of margin and is a theory of adult potential that is based upon the balance adults seek between the amount of energy needed to live and learn and the amount actually available. The survey questionnaire also studied the relationship of various demographics to an employee's MIL. Results suggest there are significant correlations between MIL and readiness for change, age, educational level, and length of time with company.

Effectively managing change is one of the most critical challenges organizations face today. History shows that organizations that continually and consistently rise to meet that challenge are those that are most successful. According to McNabb and Sepic (1995, p. 370), change is the process of "altering people's actions, reactions, and interactions to move the organization's existing state to some future desired state." Because of the constant changes confronting employees, some degree of adjustment and improvement can and should occur continuously. Often, however, changes result in dissatisfied or distressed employees. When anxiety is high, performance is lowered and job satisfaction is reduced. Staff resistance to the desired change is often excessive and immediate (McNabb & Sepic, 1995). In fact, it is often suggested that it may be

easier, at times, and less costly to start a completely new organization than it is to change the culture of an existing one. McNabb and Sepic (1995, p. 372) purported that a key goal of a company is to “introduce desired changes, while keeping anxiety, resistance, and subsequent stress to an absolute minimum.” Many of these change challenges reflect complicated human dynamics between individuals, departments, and even with outside organizations and the environment (Backer, 1995).

In the management arena, change is discussed at various levels (i.e., individual, group, and organization wide). Organizational change interventions cannot be successful unless individual change takes place. Individual change cannot effectively occur unless employees are prepared and ready for it. Increasing the overall readiness for change (RFC) of all employees may prove to be one of the most effective interventions an organization can initiate (Cunningham, Woodward, Shannon, MacIntosh, Lendrum, Rosenbloom, & Brown, 2002). Employee RFC is a challenge for any organization and is often neglected in planning and implementing (Backer, 1995). It is essential that individuals work through their fears, resistances, and anxieties about changes. This process is one that increases an individual's RFC. Identifying individual change readiness characteristics can help business professionals in prescribing and implementing more effective change interventions. One of the reasons this topic is of such importance to research is not only because of its complexity but also because of its applicability to the work of practitioners in various fields. Backer (1995) explained that:

Individual RFC is involved with people's beliefs, attitudes, and intentions regarding the extent to which changes are needed and their perception of individual and organizational capacity to successfully make those changes. Readiness is a state of mind about the need for change. It is the cognitive precursor to behaviors of either resistance or support...readiness for change is not a fixed element of individuals or system. It may vary due to changing external or internal circumstance, the type of change being introduced, or the characteristics of potential adopters and change agents. Thus, interventions to enhance readiness are possible...change can occur under conditions of low readiness, of course, but behavioral science research indicates that the probability of success is reduced when low readiness leads to low motivation to change or to active resistance (p. 22-24).

By designing and implementing research in this area, we can assist organizations with tools to increase their employees' RFC which, in turn, will benefit both the organization and the individual.

The purpose of this paper is to report the results of a research study that explored the possible influence of a number of factors (i.e., potential individual change readiness characteristics) on RFC. We were particularly interested in learning more about whether employees' levels of RFC were influenced by their margin in life (MIL) and various demographics (gender, age, marital status, educational level, number and age of children, and length of time with company).

Theoretical Frameworks

MIL was developed from McClusky's (1963) theory of margin, which he first presented in a 1963 publication (Merriam & Caffarella, 1999). Merriam and Caffarella (1999) explained that it is a theory of adult potential. McClusky's theory is grounded in the "notion that adulthood is a time of growth, change and integration in which one constantly seeks balance between the amount of energy needed and the amount available" (p. 279-80). Hanpachern, Morgan, and Griego (1998, p. 340) defined this theory, its components, and MIL in the following passage:

The basic concepts in this theory are load, power, and margin. Load is any intangible thought feeling, physiological function, or concrete task that dissipates energy when mentally entertained or physically implemented. High load puts responsibilities or burdens on an individual. Power is any source of energy or any resource that can be used to balance the load; it is positive and creates joy, pleasure, strength, or richness for a person. MIL is determined by load and power according to the formula: $[\text{Margin} = 1 - \text{Load} / (\text{Load} + \text{Power})]$. If load is higher than power, margin is less than .5. In that case, a person's energy is channeled into self-maintenance. By decreasing load, increasing power, or doing both, a person acquires margin, or the ability to act. If people have a high level of MIL (greater than .5) they will have a higher level of satisfaction and feel that more options are open to them, resulting in freedom of choice. A larger MIL equips people to handle emergencies and changes in life (p. 340).

Load and *power* are comprised of both external and internal factors (Merriam & Caffarella, 1999). For example, external load may include normal life responsibilities (e.g., family, work, and community) while internal load consists of "life expectancies developed by people" (Merriam & Caffarella, 1999, p. 280) (aspirations, desires, and future expectations). The external resources needed for power may include family support, social and physical abilities or skills, economic abilities, and work and community (Stevenson, 1982). Internal power resources may come from skills and experiences (acquired or accumulated) such as "physiological functioning, intellectual development, education, self-concept, spiritual/religious strengths, goals, and expectations which have been achieved" (Stevenson, 1982, p. 222).

McClusky (1963) offered this model for studying the course of adult development. He believed that "a person with adequate margin has a choice over a range of relevant alternatives. With adequate margin the individual has a broader field of life space and is able to move more autonomously within it" (Stevenson, 1982, p. 225). The actual model does not address change itself, but as Merriam and Caffarella (1999, p. 282) argued regarding learning, it addresses "when it is most likely to occur." The overall argument then is that to learn and change most effectively adults need to have some margin of power, meaning that individuals should have more power (resources) available than perceived load.

Much of research in the area of RFC is housed in the behavioral sciences field which studies both organizational and individual levels of change. This literature does

support the concept that RFC is significant in the business arena as well as many others. Armenakis, Harris, and Mossholder (1993) emphasized the importance of creating readiness as a precursor to organizational change. They examined the influence strategies available to help general readiness. They argued that an organization should be actively creating readiness. Backer (1995, p. 21) reported that failure to analyze and deal with readiness issues can actually lead to “abortive organization development efforts”. He explained that resistance to change is directly related to not providing an effective *unfreezing* process before attempting a change. He theorized that Lewin’s (1951) *unfreeze* element of his change theory is a major element of RFC. If proper and complete *unfreezing* or *readiness* does not occur, long-term successful change cannot occur.

Although previous literature has not specifically addressed a connection between the theory of margin and Lewin’s field and change frameworks, there are some interesting parallels. According to Kurt Lewin (1951, p. 240), human behavior is determined by the entirety of an individual’s situation or the “totality of coexisting facts which are conceived of as mutually interdependent.” In his field theory the whole psychological field within which people interact must be considered to understand behavior. Individuals behave differently based on the tensions between perceptions of self and environment, and these tensions can stem from work and non-work domains. Lewin believed that one must consider the power of the underlying forces to determine behavior. McClusky’s theory of margin is also based on these assumptions. He argued that the constructs of *power* and *load* should consider all of life’s decisions and dimensions. Both Lewin and McClusky would argue then that the entire situation (life in all its complexity) should be considered in the design of effective human change.

When writing about Lewin’s work, Edgar Schein (2006, p. 1) argued that “all forms of learning and change start with some form of dissatisfaction or frustration generated by data that disconfirm our expectations or hopes.” His research found that human change (at the individual, group, or organizational levels) is often a profound psychological dynamic process that involves “painful unlearning without loss of ego identity and difficult relearning” as one cognitively attempts to “restructure one’s thoughts, perceptions, feelings, and attitudes” (Schein, 2006, p. 1). McClusky’s framework would consider all of the variables in the “whole” picture as either neutral or contributing to *power* and *load*. Since change most likely requires energy, it would be considered a *load* in the MIL framework. Hence, as previously mentioned, MIL would look at all of these variables when considering an appropriate time to prepare for change (i.e., RFC). McClusky would argue that assisting employees in ensuring their MIL includes more *power* than *load* would give them more energy (e.g., mentally, physically, emotionally) to be open, willing, and supportive in participating and/or leading change efforts. Of course, Lewin argued that effective change requires a preparatory phase (*unfreezing*), implementation (*change*), and *refreezing* (e.g., it becomes a habit, is a set process or system, the change becomes institutionalized). Enhanced MIL would assist employees in all phases of Lewin’s change model. For the purpose of this research, however, MIL is a power concept to consider particularly in Lewin’s unfreeze phase.

Another final perspective on RFC can be found in the transtheoretical change model that has been extensively researched during the past 25 years. It was originally

developed to study the process of smoking cessation but has expanded to include many other change efforts. The model integrates two interrelated dimensions of change, stages of change, and processes of change, along with the constructs of self-efficacy and decisional balance. The stages of change dimension is represented when an individual is ready to change (Barrett, 1997). The five stages of change are pre-contemplation, contemplation, preparation, action, and maintenance (Barrett, 1997; Block & Keller, 1998; Morera, Johnson, Freels, Parsons, Crittenden, Flay, & Warnecke, 1998). Characteristics of RFC are present in both the contemplation and preparation stages. Block and Keller (1998) proposed a segmentation approach (Prochaska & DiClemente's (1984) transtheoretical model and Roger's (1975) protection motivation theory) to suggest that people at different stages of RFC are differentially affected by levels of these predictor variables (i.e., vulnerability, severity, response efficacy, and self-efficacy). They do admit, however, that they cannot determine, with correlational statistics, the direction of the correlation. Morena et al. (1998) discussed the debate surrounding the measure of stage of readiness to change and the transtheoretical model. Their research results indicated that the measure of RFC showed high levels of stability and reliability in their specific setting.

Literature Review

In addition to a review of relevant theoretical frameworks, a review of the literature can assist in understanding the research constructs for this study and their relationships. First, the importance of creating readiness and reducing resistance to change efforts will be discussed after which literature on the following topics will be reviewed: the results of Hanpachern's (1997) study; the participative method of change interventions; RFC characteristics and factors; the manager's role and employee empowerment; and the influence of nonwork aspects on employee performance.

There has been discussion of the relationship between RFC and resistance to change. Armenakis et al. (1993, p. 681) argued that RFC is distinguished from resistance to change, stating, "Readiness is the cognitive precursor to the behaviors of either resistance to, or support for, a change effort." Tranthant and Burke (1996, p. 37) argued that employees' resistance to change is an important component in successful organizational change interventions, explaining that "managing change effectively requires a sophisticated appreciation and understanding of the multiple variables at play. People and processes must be in tight alignment in order to support goals."

Hanpachern (1997) conducted an interesting study comparing an individual's overall margin in life (MIL), and many of its work and nonwork aspects, with an individual's RFC level. Hanpachern et al. (1998) made fairly bold conclusions reporting the results of this research study. They reported significance in all of the work aspects of margin with readiness correlations ranging from .20 to -.34 ($p < .05$; $p < .01$). They did not find significance in any of the nonwork aspects of margin, but the overall MIL produced a .28 correlation ($p < .01$). From their statistics they concluded that the theory of margin can be extended for use in the organization development field and that MIL can help identify workers' RFC. In their study, work factors (especially management-leadership relations and job skills and knowledge)

predicted RFC. Hanpachern et al. (1998, p. 349) explained that “although the nonwork factors themselves were not predictors of readiness in this study, the factors of self, family, and health were generally rated as more important than the work factors. The nonwork factors also had more power than load, indicating positive MIL”. Even though significance was noted in many correlations, their conclusions were not fully supported in whole by the statistical findings. The study had a number of agreement limitations in its research methodology (e.g., sample size, use of only one organization) that prevented it from significant generalizability. The results, however, were interesting and can be utilized for the purpose of discovery as Arkmenakis, Harris, and Mossholder (1993) suggested.

Some of the survey questions used in Hanpachern's (1997) study related to the literature suggesting that the participative method of change interventions is important in order to overcome resistance to change. This means that employees participate more successfully in change if they are included in the decision-making process for the change intervention. Even though this theory appears to be widely accepted (Hanpachern et al., 1998), it is important to consider the contradictory literature. Locke, Schweiger, & Latham (1986) noted that, even though evidence does support participation, there is some support that in decision-making it is not always a precursor for successful change interventions. A review of 50 employee-participation studies show that “26% of the studies found that participation resulted in lower productivity” and concluded that “both scientific literature and management experience have demonstrated that participation is useful only under certain circumstances, a key requirement being that the subordinate has expertise to bring to the decision-making process” (Locke et al., 1986, p. 65).

McNabb and Sepic (1995) introduced a model that identified the relevant factors determining RFC for an individual and an organization. These included organizational culture, organizational climate, organizational policies, and organizational performance outcomes. According to their model, these are directly linked to RFC. It was suggested that the “effective integration of culture, climate, and policies determines the ability of an organization to carry out its mission and to accept and integrate change” (McNabb & Sepic, 1995, p. 372). Additionally, “inertia, manifested as a resistance to change in the operating philosophy of an organization, has been shown to be a powerful force” limiting the adoption of change (McNabb and Sepic, 1995, p. 381). Backer (1995) presented elements defining efforts to enhance change readiness which include contextual factors, message characteristics, and communication approaches that can be used to deliver them; attributes of change agents; interpersonal and social dynamics of the organization in which change is to take place; and specific enhancement interventions. He presented a model for this enhancement that included three stages: assessing readiness, contextualizing readiness, and enhancing readiness. This literature does support Hanpachern's (1997) and Stevenson's (1982) decision to include a number of work aspect MIL domains, subscales, and individual survey items in their questionnaires.

Cabana, Rand, Powe, Wu, Wilson, Abboud, and Raubin (1999) identified 5,658 articles and selected 76 published studies to review regarding additional RFC characteristics. Each of these studies included at least one barrier to adherence of

physicians to clinical practice guidelines, practice parameters, clinical policies, or national consensus statements in an attempt to develop an approach toward improving adherence. Reducing these barriers appeared to decrease physicians' RFC and to increase their reluctance to change at least in this specific context. These barriers included lack of awareness, lack of familiarity, lack of agreement, lack of self-efficacy, lack of outcome expectancy, inertia of previous practice, and external barriers (e.g., cumbersome, confusing). Although their results were not generalized to other employment occupations, further research may show that reducing these barriers may be helpful for other occupations in various types of organizations. These barriers relate directly or indirectly to a number of questionnaire items as well as to the majority of the work aspects of margin Hanpachern (1997) presented.

Hanpachern (1997) showed correlation between an employee's relationship with management/leadership, job knowledge and skill, job demands, social relations, and in his/her MIL. Burke (1997) found that an employee's RFC is reduced when role and task responsibility ambiguity regarding the employer's expectations is present. The employee is more likely to experience feelings of job insecurity as well as possible reduced motivation. In fact, Armenakis and Harris (2002, p. 169) explained that "negative responses to organizational changes are caused by leaders' oversight of the importance of communicating a consistent change message." Another reason the readiness may not be present is that the employee is not receiving feedback. This naturally contributes to insecurity and reduced motivation. Pronk, Tang, and O'Connor (1999) studied the hypothesis that willingness to communicate is directly associated with an individual's readiness to change behavior. The results of the study demonstrated this to be the case. Schleusener (1999, p. iii) studied the RFC of individuals in organizations and found that "a hierarchical regression analysis of the elements of the supported employment model on empowerment of individuals in six different departments showed that readiness for change and self-efficacy for teamwork were significant contributors to empowerment."

There is also literature available supporting the findings that nonwork aspects of MIL (i.e., self, family, and health) have an effect on an employee's productivity and stress. A study by Kirchmeyer (1992) provided support that participation in nonwork domains can enrich human resources available for work. The aim of another study by Kirchmeyer (1995) was to test a conceptual framework for managing the work-nonwork boundary. She surveyed men and women who faced considerable demands in both work and nonwork domains because many often report high levels of inter-domain conflict. It was found that there is spillover to work from nonwork aspects. Even though the connection was implied, more research is needed to solidify a specific link of these boundaries to RFC. Cohen (1995) conducted research to examine the relationship between work commitment form (i.e., organization commitment, occupational commitment, job involvement, Protestant work ethic, work involvement) and nonwork domains. Although the return rate was only 47 percent, it was found that, with the use of correlational analysis (i.e., regression analysis), nonwork domains affected all work commitment forms examined in this study, especially organizational commitment. Work commitment forms have been shown to predict important work outcomes such as "turnover, turnover intentions,

performance, organizational citizenship behaviors, absenteeism, and tardiness” (Cohen, 1995, p. 240). It was also noted that the way in which organizations react toward nonwork domains of their employees can increase or decrease work commitment. Research in each one of the nonwork aspects of the MIL survey also provides evidence of a positive relationship on an individual’s power and load as defined previously.

Regarding demographic variables and their relationship to MIL, Hanpachern et al. (1998) found that age, gender, education, marital status, and length of employment did not have a relationship with the MIL construct. However, differences in RFC were found among employees who worked in certain departments and positions, were in managerial positions, and were relatively new to the organization. Related to marital status or number of children, other research has suggested the changing roles of men and women, both at home and in the workplace, may influence overall life satisfaction. Researchers in Europe found that it is the tendency for women to be taking on new roles as they enter the workforce, and yet family responsibility continues to be viewed as a female domain (Shoon, Hansoon, & Salmela-Aro, 2005). These researchers further reported that overall life satisfaction is enhanced for males and females in paid employment who are married and have children. These authors did find some difficulty for men as they attempted to adapt to domestic duties. This provides some indirect evidence that marital status and children may increase an employee’s MIL because of the life satisfaction construct. However, McElwain, Korabik, and Rosin (2005) suggested that as individuals attempt to redefine themselves, taking on roles that were previously not there, the result can be a kind of interrole stress which is work-family conflict. It would seem apparent that work interfering with family and family interfering with work can result in different forms of stress and may be viewed differently by men and women. These researchers found that work interfering with family was an issue for both men and women, and that family interfering with work was more of an issue for men compared to women. The researchers did find that overall job satisfaction and general life satisfaction were as similar for men and women. Perrewe, Hochwarter, and Kiewitz (1999) suggested that value attainment may be a mediator variable between work interference with family, family interference with work, and overall job and life satisfaction. These researchers proposed that individuals tend to compare life activities to pre-determined standards or values. Thus if work begins to interfere with family, the value a person has for family may mediate the end effect of life and job satisfaction. The same can be said to be true for family interfering with work and the value one places on work. The perceptions of life and job satisfaction may well be moderators for MIL. It is clear that the past literature is mixed in providing support for possible relationships between MIL and various demographic variables.

The reviewed literature assisted in the development of a framework for the current study. The literature does support the importance of RFC as well as a high MIL in overall human productivity. It has also supported the design choices in Hanpachern’s (1997) study of the eight work and nonwork aspects of margin and also supports the items in our revised and simplified MIL scale that has yet to be presented.

Purpose and Hypotheses

The purpose of this survey questionnaire study was to investigate the concepts of McClusky's (1963) theory of margin, including both the work and nonwork aspects of MIL, and their relationship to RFC. We chose to utilize the general framework of Hanpachern's (1997) work while making extensive changes to the MIL scale, sample and population, and other methodological components. Because the relationship between work and nonwork domains continues to be of great interest to researchers and employees (Kirchmeyer, 1995), we felt continued attention to these domains was important. We wanted to determine if employees who have higher MIL levels are more open and prepared for change. If supportive findings were discovered, implications for types of change interventions may surface. In addition, the cost-benefit of designing and implementing person-focused, small group, or large group interventions that can assist employees in increasing their margin in life (work and non-work aspects) may be strengthened. Since there is little available research in this area, another purpose of this study is for overall discovery. Armenakis et al. (1993, p. 688) stated that "readiness assessments may be for the purpose of discovery as much as for the purpose of confirmation."

Therefore, the ultimate goal of this study was to learn more about whether employees' levels of RFC are influenced by their MIL and various demographics. Based on the theoretical frameworks and research findings presented in the previous section, we predict the following:

Hypothesis 1: Employees who have higher MIL levels will have significantly higher perceptions of overall RFC.

Hypothesis 2a-b: Employees who have higher a) non-work-related MIL and b) work-specific MIL levels will have significantly higher perceptions of overall RFC.

Hypothesis 3: There will be no relationship between MIL levels among gender, age, number of children, marital status, educational level, and length of time with company.

Research Methods

This research study involved a survey questionnaire being given to employees in corporate settings. It can be classified as a correlation relational study because two or more different kinds of data were gathered from the same groups of subjects to test for relationships between the independent and dependent variables.

Participants and Sample Selection

The population of this study was the group of individuals who conformed to specific criteria and to which we intend to generalize the results of this research study. This target population included the populations of four organizations (three for-profit and one non-profit) within the state of Utah with numbers of local employees ranging from approximately 200 to over 2,000. These organizations varied greatly in industries, products, and services. One organization distributed surveys to all employees while another distributed surveys to all employees within six predetermined departments. A

third conducted a random sample of all supervisors, management, and leadership within the organization. Finally, we ran a random sample of about two-thirds of all employees for the fourth company. A total of 758 surveys were given to employees, and 464 surveys were returned for a return rate of over 61 percent.

Measures/Instrumentation

We had originally explored doing a complete replication of Hanpachern's (1997) study; but after some troubling pilot test results we substantially changed the MIL scale. For our revised study, RFC served as the dependent variable; overall, work, and nonwork MIL served as independent variables; and the intervening demographic variables included gender, age, marital status, educational level, number of children, age of children, and length of time with company.

We used two instruments for this research project. First, we used Hanpachern's (1997) original 14-item RFC scale (with slight alterations) which was based, in part, on McNabb and Sepic's (1995) research and several unpublished studies. The stem question asked "My willingness or openness to..." and some sample items include the following: 1) work more because of the change is; 4) create new ideas is; 7) change the way I work because of the change is; and 12) support change is. Participants were asked to circle one of seven numbers on a Likert scale (1=very unlikely; 7=very likely). Schleusener (1999) explained that Hanpachern identified three dimensions of RFC: promoting change, participating in change, and resisting change. These dimensions serve as subscales. Promoting includes four items, participating includes six, and resisting change includes the remaining four items used in this scale. Hanpachern pilot tested three versions of this scale and Cronbach's alpha was measured to be .82, which indicates good internal consistency (Hanpachern, 1997; Hanpachern et al., 1998; Schleusener, 1999). Our slightly adjusted instrument had a Cronbach's alpha of .81 which is consistent with previous research.

Second, we formed the MIL scale by studying Hanpachern's MIL Revised scale which had already been modified from the original published survey by Stevenson in 1982. The MIL Revised scale consisted of 50 questions designed to measure many aspects of life in relation to work and nonwork. The work aspects of margin are divided into five categories including: job knowledge and skill, job demands, social relations in the workplace, management-leadership relations, and organizational culture. The nonwork aspects of margin are divided into three categories which include: self, family, and health. Our simplified instrument included nine questions in total, with only one question focused on each of the work and nonwork areas discussed. Participants were asked to read each statement carefully and then circle the number (on the list provided below) that best represented their feelings and views.

- 1 = Takes *a lot* of my energy - it physically or mentally drains - a load on my shoulders
- 2 = Takes *some* of my energy - it *somewhat* drains me - somewhat of a load on my shoulders
- 3 = Neither takes energy nor provides joy, pleasure, strength, or richness for me.

4 = Provides or creates *some* joy, pleasure, strength, or richness for me – gives me *some* energy/power in my life.

5 = Provides or creates *a lot* of joy, pleasure, strength, or richness for me – gives me energy/power in my life.

The participants were asked to answer the following nine questions by circling one of the numbers (1-5) provided above.

1. My job...
2. Balancing my work and family...
3. My physical and mental health...
4. My relationship with my boss...
5. My social relationship in the workplace...
6. My current job knowledge and skills...
7. The demands of my job...
8. My commitment to this organization...
9. My family...

The Cronbach's alpha for this scale was .73 which is lower than Hanpachen's version ($\alpha = .85$) but still within an acceptable range. The new version of the MIL instrument was pilot tested ($n=44$) to ensure internal consistency, which was found. Even though Stevenson (1982) and Hanpachern (1997) established validity, stability, and internal consistency on their instrument, because of the substantial changes in the current form, establishment will need to be re-explored.

Data Collection Procedures

A key contact at each organization was used to distribute surveys. This individual had a list of the employees to be given surveys and the survey number each should be given. We kept a list of survey numbers given to each organization, and we recorded which surveys were returned. Researchers did not have a list of employee names, so confidentiality was maintained. Numbers were used to identify organizations. After about 10 days we asked the organizational contacts to provide a general reminder to all participants to return surveys. Additional copies of surveys were provided if needed. In three of the organizations, an envelope with a pre-addressed and stamped envelope was provided so they could mail them directly to us. One organization asked participants to seal them in an envelope and drop them off in a large drop envelope located in each of their departments. The following week a researcher picked up the sealed envelopes. This resulted in a return rate of over 61 percent.

Data Analysis Procedure

We used Pearson correlations and multiple regressions to explore the relationships between MIL and RFC. The Pearson correlation coefficient was used to test magnitude and direction of the relationship. Multiple regressions were used to determine the correlation between the criterion variable and a combination of demographics (Gall, Borg, & Hall, 1996).

Limitations

There are five primary limitations for this study:

- First, our study was limited to only specific aspects of MIL. It did not and could not address all variables that can increase an individual's power or all of the variables that can decrease an individual's load;
- Second, an individual's RFC can be influenced by variables not measured in this study. A questionnaire survey cannot accurately control many variables within an organization's culture or for an individual's situation;
- Third, participants may not have a clear understanding of power and load even though it will be briefly addressed on the questionnaire. Neither was there time nor finances for interviews, so the participants were limited to a brief written description;
- Fourth, a questionnaire cannot probe deeply into respondents' opinions and feelings which would be helpful in taking a more comprehensive look at RFC and its relationship to MIL;
- Fifth, the study was limited to 758 employees in four organizations. A larger and fully randomized sample would have improved generalizability.

Results and Discussion

Table I contains the demographics of the participants who returned their surveys. As is shown, male and female respondents were nearly equal; and most employees were between the ages of 21 and 54 (see additional demographics).

The first hypothesis predicted that employees who had higher MIL levels would also have higher overall RFC perceptions. The Pearson's correlation coefficient ($r=.298$) did show that there was a significant correlation at the .01 level between individual MIL and RFC responses. This supports Hanpachern's (1997) findings already discussed. This means that individuals who perceive they have more *power* than *load* (MIL) also believe they are more open and ready for change.

The second hypothesis predicted that employees who had higher non-work-related MIL and work-specific MIL levels would also have significantly higher perceptions of overall RFC. This hypothesis asks us to look deeper within the MIL score to see if there are correlations between the six work MIL work items and RFC as well as the three nonwork MIL items and RFC. As for the work MIL items, there is a significant correlation ($p=.01$) of .288 between MIL and RFC. This means that employee perceptions of work-related *load* and *power* are related to their RFC. In other words, the more *power* or the higher work-related MIL (relationship with boss, commitment to company, relationship with coworkers, and such), the more the employee is open and ready for the changes that he or she may be asked or expected to make at work. There is also a correlation (although very low) of RFC and nonwork MIL (family, work-family balance, physical and mental health) ($r=.181$). This means that there is a relationship between the power employees may feel from their families/health that may be related to their RFC as well.

These findings support our overall argument that to learn and change most effectively adults need to have some margin of power, meaning that individuals should

Table 1: Demographic Frequencies of the Sample

<i>Demographic</i>	<i>Categories</i>	<i>Frequencies</i>
Sample	Total number	464
Gender	Male	222
	Female	229
Age range	Less than 21	10
	21-30	230
	31-40	97
	41-54	92
	55+	22
Marital status	Single	96
	Separated/Divorced	33
	Widowed	3
	Married	316
Highest educational level	High School	135
	Associate Degree	141
	Bachelor Degree	152
	Masters Degree	21
	Doctorate Degree	2
Age of children	None	180
	0-5	144
	6-11	98
	12-18	87
	Over 19	51
Length of time with company	0-6 months	53
	7-11 months	63
	1-2 years	95
	3-5 years	145
	6 or more years	95
Company	A	128
	B	145
	C	127
	D	54

have more power (resources) available than perceived load. This argument emerged from the writings of theorists and researchers working in this area (e.g., McClusky, 1963; Merriam & Caffarella, 1999; Stevenson, 1982). As McClusky (1963) argued, “a person with adequate margin has a choice over a range of relevant alternatives” (Stevenson, 1982, p. 225). One such alternative is clearly being open, prepared, and willing to be involved in personal and professional change efforts. This research also supports Lewin’s (1951) writings that human behavior is determined by the entirety of an individual’s situation, as the MIL construct attempts to represent. Although it is important to note that because of the complexity of human behavior, a MIL measurement does not and cannot address all elements of an individual’s life that could possibility relate. These results also support the notion that MIL is perhaps an important element or component in the *unfreezing* stage of Lewin’s change model. Since effective change requires this stage to occur and there is a clear relationship between MIL and change readiness (i.e., *unfreezing*), interventions that heighten MIL may prove advantageous for organizations and families.

Finally, because of the mixed literature, the final hypothesis predicted no

relationship between MIL and the demographic variables of gender, age, marital status, educational level, number of children, and length of time with company. However, unlike Hanpachern's study which found no relationship between demographics and MIL, our study found a significant relationship between MIL and age of employee ($p=.045$), education level ($p=.002$), and the length of time an employee has been working with the company ($p=.041$) (see Table 2). In general terms, the older the employee is the higher MIL level he or she perceives (more power than load). Another interesting finding was that there was actually a significant negative relationship between the level of education and MIL. This means that employees with less education perceived themselves as having higher levels of MIL. This may be because people with more education typically have more responsibility, tend to be salaried instead of hourly (hence often work more hours), and may have more complex jobs. These individuals may feel more of a load than those who are not as highly educated. Finally, it appears that those who have been with the company the shortest periods of time have higher level MIL levels. The past literature provides no findings to explain why this would be the case. Literature does find that new employees often adapt better to change than employees who have worked longer (Hogarty, 1996). Perhaps new employees also feel lighter *loads* because they are not fully entrenched into an organizational culture that may become more of a burden or load the longer an employee works for the same company. Regarding the demographic variables, it is important to note that the change in the R-square value in the multiple regression was only .06. The R-square value is an indication of the variance accounted for in the dependent variable by the independent variables. In this case the variance accounted for in MIL is .251. The change in R-square implies the change in variance accounted for by adding additional predictors. Although age of employee, educational level, and length of time with company did account for some variance, it is important to note that the practical significance of these results may be questionable.

Table 2: *The Relationship between MIL and Selected Demographics*

Variables	B	Sig.	R ²	ΔR ²	F
(Constant)	29.465	.000	.251	.063	2.599**
Gender	.841	.104			
Age of employee	.791	.045*			
Marital status	.218	.316			
Educational level	-.863	.002**			
# of children	7.616E02	.839			
Length of time with company	-.422	.041*			

* $p < .05$; ** $p < .01$

These results found no relationship between the MIL construct and gender, marital status, or number of children. This supports Hanpachern (1997) who found similar results in looking for relationships between MIL and gender and marital status. As previously mentioned, research (Shoon et al., 2005) has suggested that changing roles at home and in the workplace may influence overall life satisfaction which may be linked to MIL. Although women tend to have stronger home roles in addition to new workplace roles, researchers found overall life satisfaction of both males and females to increase if they were married and had children—possible *power*. On the other hand, the literature on work-family conflict provides reasons that MIL may decrease with the additional responsibilities of children and family duties—possible *load*. It is probable that this power-load combination of the marital status and number of children demographics may have resulted in no impact on individual MIL levels, as found in our research. As mentioned previously, both males and females experience similar levels of life satisfaction from children and marriage and additional research has shown both genders (although differently) perceive work-family conflict (Perrewe et al., 1999). This may be one reason there is no difference between the genders in perceptions of MIL in this study.

Implications for Future Theory and Practice

What are the implications for future theory and research? Continued research in the area of RFC is essential. Although the concepts have been around for many years (e.g., Kurt Lewin) and much has been done in the general area of change, little research has been done in the management arena related to RFC for change at the individual level. Research focused on the identification of RFC moderators/factors and resistance to change constructs is needed along with research on specific interventions that can result in increased RFC. Further, research needs to be continued in the area of the transition from workplace readiness to the actual change movement. This research has been based on established theory from a number of domains. However, theory specific to the complex relationship between MIL and RFC has not been developed. This research provides the evidence and groundwork to encourage and support further theoretical work in this area.

What are the implications of this research for practice? Strategic management is all about change. Change is foundational to performance improvement at all levels. Many researchers and practitioners already focus on organizational change, but continued work in the area of individual change can be just as important to understand and facilitate. Practitioners who do not understand individual readiness will develop and implement change interventions that will not be as successful (short-term and long-term) as those who design interventions, when needed, to prepare employees to be open and ready for the change that needs to occur. Overall, managers and leaders can be more effective and efficient if they understand RFC and its antecedents, determinants, moderators, outcomes, connections, and complexity. Change can be exhilarating for some—or at least not as painful as it could have been for others—if employees are ready and willing to adjust, improve, learn, and develop.

The identification of factors that influence readiness for individual change is an

important endeavor. Changing individual employees is a complex task, especially when they are not open to or supportive of change efforts. This study found that employees who have higher MIL levels (meaning they feel more energy, strength, joy, and power from their work and nonwork lives and environments) may be more open and ready for changes the organization may require of them. Furthermore, employees who feel good and are not burdened down by various work (job in general, job demands, relationship with boss, workplace social support, job knowledge and skills, and commitment to the organization) and possibly nonwork (family, balancing work and family, physical and mental health) concerns appear to be ready to make necessary individual and organizational changes. This provides support for organizations to offer assistance to employees so that they can have more energy to commit to change efforts. Interventions may include assisting employees with balancing work and family responsibilities (flexible schedules, childcare assistance, job-sharing, training, and more), offering wellness programs, organizing communication improvement activities with management and employees, providing continual help related to improving job knowledge and skills, adjusting job demands when appropriate, providing programs to improve organizational commitment, and increasing employee autonomy.

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Mediating Role of Strategic Choice Between Top Management Team Diversity and Firm Performance: Upper Echelons Theory Revisited

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Several studies attempt to relate top management team (TMT) demographic diversity to firm performance, and the findings are varied. This study examines the mediating role of strategic choice in affecting firm performance. The sample consists of 66 firms from the telecommunication industry that engaged in mergers and acquisitions. Strategic choices used are firm innovation and acquisition activity. Results indicate that (i) age diversity is negatively related to strategic choice, (ii) functional heterogeneity is positively related to strategic choice, and (iii) strategic choice mediates the relationship between functional heterogeneity and firm performance. Results thus provide support for the upper echelons theory.

Ever since the publication of the seminal work of upper echelons theory (Hambrick & Mason, 1984), interest on the study of top management team (TMT) demographic characteristics and their effect on various organizational outcomes has

escalated. Building on the idea of dominant coalition (Cyert & March, 1963), the upper echelons theory posits that observable characteristics of TMTs (e.g. educational background, functional background, age) are the proxy measures of psychological factors (e.g. values, cognitive style, cognitive content) that influence strategic choice. Various studies demonstrate that organizations are the reflection of top managers. Finkelstein and Hambrick (1996) have noted that from 1984 to 1996, over two hundred studies concerning upper echelons theory were published, and researchers have continued to focus on this timely topic (Zhang & Rajagopalan, 2003; Peterson, Smith, Martorana, & Owens, 2003; Simsek, Veiga, Lubatkin, & Dino, 2005).

TMT Heterogeneity

The central construct that emerged during the research on TMT is the heterogeneity of the team. Researchers have demonstrated both positive as well as negative effects of heterogeneity on various outcomes such as turnover, consensus, and performance. On the positive side, the imputed logic is that having a heterogeneous team enhances the knowledge base, cognitive abilities and overall problem-defining and problem-solving skills of the group (Bunderson, 2003; Hambrick, Cho & Chen, 1996). In fast changing, dynamic environments, information processing requirements call for identification of greater adaptive capabilities, thus favoring heterogeneous teams (Harrison, Price, Gavin, & Florey, 2002). TMT heterogeneity is of utmost importance to firms that operate in industries characterized by high velocity environments.

Some researchers, however, contend that heterogeneity generates tension or a gulf that constrains the information exchange and thus adversely affects firm performance (Ancona & Caldwell, 1992). Researchers have found that heterogeneous teams cause less social integration and communication frequency and high turnover in top management teams (Wagner, Pfeffer, & O'Reilly, 1984). Diverse viewpoints, different thinking wave-lengths, uncommon vocabularies, paradigms, and objectives often make a heterogeneous team a net liability to the organization (Hambrick, Cho, & Chen, 1996). Heterogeneous teams thus can create strains in the decision-making process, which may contribute negatively to organizational performance (Pfeffer, 1983).

The results of TMT heterogeneity on various outcomes such as performance, consensus, social integration, and decision-making processes are therefore mixed and often contradictory. For instance, Wiersema and Bantel (1992) demonstrated that heterogeneous teams will be more creative and will cast a wider net on information while evaluating various alternatives than homogeneous teams. A diametrically opposite view, suggested by O'Reilly, Snyder, and Boothe (1993), proposes that homogeneity promotes cooperation that is essential for implementing strategic decisions. Thus, heterogeneity may act as a 'double-edged sword' (Finkelstein & Hambrick, 1996).

One potential explanation for the inconsistent results could be that researchers assume a direct link between TMT heterogeneity and firm performance, whereas TMT heterogeneity is likely to indirectly affect firm performance through strategic choice. The equivocal results of TMT demographic diversity may also be due to the use of a composite measure of diversity (e.g. West & Schwenk, 1996). If different types of

diversity influence outcomes in different directions, the effect may be cancelled due to the problem of aggregation. To avoid this problem, some researchers prefer to measure demographic variables independently (e.g. Knight et al., 1999). This paper offers a more complex view of the relationship between TMT observable characteristics and firm performance mediated by strategic choice: merger and acquisition activity and internal innovation.

Strategic Choice

The two strategic choice variables chosen for this study are growth-related strategies: (i) mergers and acquisitions and (ii) innovation inputs. To survive in the long run, firms embark upon formulating and implementing these strategies.

(i) Mergers and Acquisitions: Executives believe that mergers and acquisitions provide a quicker route to achieving growth and diversification objectives. Most of the merger and acquisition studies address the potential consequences of merger activities. Researchers have studied the inter-group dynamics for acquisitions (Haspeslgh & Hemison, 1991), organizational fit and acquisition performance (Datta, 1991), TMT turnover following mergers and acquisitions (Walsh, 1988), and the role of 'culture' in acquisitions and post-acquisition in success of acquisition ventures (Chatterjee, Lubatkin, Schweiger & Weber, 1992; Datta, 1991).

(ii) Innovation inputs: Firm innovation is a very important strategic choice for most growth-embarking firms (Franko, 1989). In fact, firm innovation has become an integral part in value creation for many industries (Hitt, Hoskisson, Johnson & Moesel, 1996). Research on innovation has shown how organizations create and retain structure to create innovative products (Kanter, 1983; Pinchot, 1985; Van de Ven, 1986). Firms resort to innovation as a potential strategic choice to see that organizations adapt to changes in markets, technology, and competition. Growing literature on product and process innovation suggests the organizational characteristics necessary to promote such innovative activities (Zirger & Maidique, 1990).

Theoretical Development

The heterogeneity in TMT is considered to be a positive force leading to overall organizational performance (Finkelstein & Hambrick, 1996). The imputed logic is that firms require diverse capabilities of executives to formulate and implement strategic decisions. Heterogeneous teams are expected to bring greater variance in creativity, innovation, ideas, ideologies, etc., thus enabling organizations to perform better (Jackson, May & Whitney, 1995). Hambrick and Mason (1984) argue that the psychological and cognitive characteristics of the members of the TMT are critical to corporate choices they make on which the performance of the firm largely depends. It is therefore indispensable to examine the link between heterogeneity in the TMT and strategic choices such as mergers and acquisitions and internal innovation.

TMT Diversity and M&A Activity

Although it is contended that TMT heterogeneity affects the process of making decisions much more than it does the content of those strategies (Bunderson &

Sutcliffe, 2002), the composition of the TMT does affect strategic choice. For instance, TMTs dominated by executives with sales and marketing experience will perceive the information from the environment such that they favor product innovation and differentiation (Hambrick & Mason, 1984). On the other hand, TMTs dominated by executives with finance and accounting backgrounds will have a tendency to diversify through acquisitions (Song, 1982). Research also supports the idea that companies perform better to the degree that executive backgrounds fit the firm's chosen strategy (Michael & Hambrick, 1992). Heterogeneous teams may be able to study the industry environment, assess the strengths of the firms, and weigh the pros and cons of acquisitions, more than the homogeneous teams are able to.

Prior research investigating the relationship between team heterogeneity and organizational outcomes has made a distinction between job-related and non-job related demographic characteristics of executives. Functional background, educational background, and tenure of executives are highly job-related attributes, whereas age and gender are low in job-relatedness (Pelled, Eisenhardt & Xin, 1999). If the heterogeneity is high with respect to highly job-related attributes, then these attributes are apt to have a stronger relationship with strategic choices. For example, Ancona and Caldwell (1992) demonstrated that product development teams use the members' technical skills, information, expertise, and experience in the industry as well as in the organization to develop new products, and these attributes are directly related to members' functional and educational backgrounds. Several researchers also argued that functional background and educational background are especially relevant to strategic tasks (Sessa & Jackson, 1995; Milliken & Martins, 1996; Pelled, 1996).

In sharp contrast, age is low in job-relatedness. As Sessa and Jackson (1995) observed, age helps form the context of social relationships, rather than be related to tasks. Diversity researchers call this form of diversity social category diversity, which focuses on readily detectable differences (van Knippenberg, De Dreu, & Homan, 2004). Research has shown that groups that are more homogenous in social category diversity (e.g. age) tend to have higher overall group performance than those groups that are more heterogeneous (Jehn, Northcraft, & Neale, 1999; Simmons, Pelled, & Smith, 1999). This type of diversity may create in-group and out-group categories that may be detrimental to strategic decision making. For example, the heterogeneity in non-job-related attributes may trigger affective conflict such that the executives may not be able to reach consensus and in some cases may even avoid evaluating the strategic choices on the cognitive platform. We specifically argue that the greater the diversity in age, the less the potential for consensus in making new acquisitions; hence, a negative relationship is expected between age diversity and acquisition activity.

Conversely, high job-related heterogeneity (e.g. functional background) will affect cognitive tasks such that members spend considerable time and energy in assessing the appropriateness of strategic choices. Job-related attributes capture experiences and skills necessary to perform cognitive tasks. The logic behind this argument is that cognitive tasks, such as the selection of desirable acquisitions, will demand experience and knowledge obtained through exposure to various functional areas. These diverse experiences provide a solid basis of competency that would allow functionally diverse teams to comfortably agree on engaging in complex transactions such as mergers and

acquisitions. Based on the above arguments, the following hypotheses can be advanced:

Hypothesis 1: There will be a positive relationship between TMT functional heterogeneity and mergers and acquisitions.

Hypothesis 2: There will be a negative relationship between TMT age diversity and mergers and acquisitions.

TMT Heterogeneity and Innovation Inputs

Research suggests that heterogeneous teams are able to evaluate alternatives along several dimensions and make high-quality decisions (Schweiger, Sandberg & Rechner, 1989). Bantel and Jackson (1989) found that heterogeneity in functional backgrounds of the team members is positively associated with innovation. In other studies, heterogeneity in educational specialization is related to innovation, whereas age heterogeneity, team size, and tenure heterogeneity were not significantly related to innovation (Coff, 2003; Wiersema & Bantel, 1992). However, the results between firm tenure heterogeneity, age heterogeneity, and innovation are mixed in one study (O'Reilly, Caldwell & Barnett, 1989). Consistent with Bantel and Jackson (1989), the positive relationship between functional background heterogeneity and firm innovation is expected, because this is task-related diversity. Age diversity, however, may create differences in values and attitudes that could hinder the process of investing in innovation inputs because the members of the team may have dysfunctional conflict. In addition, age diversity may create different perspectives on strategic choice since TMTs with older, more tenured members may be less likely to pursue innovation strategies since such investments are often not realized until the long term. The previous arguments suggest the following hypotheses:

Hypothesis 3: There will be a positive relationship between TMT functional heterogeneity and internal innovation.

Hypothesis 4: There will be a negative relationship between TMT age diversity and internal innovation.

Strategic Choice and Firm Performance

Hambrick & Mason (1984) posit that strategic choice consistent with environmental demands will lead to positive outcomes. One strategic choice is mergers and/or acquisitions. Firms engage in acquisition activity with the intention of enhancing performance; thus, a positive relationship can be expected between acquisition activity and firm performance. There is support that post-acquisition performance is positive (Ravenscraft & Scherer, 1987; Kedia, 2002). Further, recent research shows that acquisitions restore vitality in an organization, which in turn, positively affects firm performance (Vermeulen, 2005).

Internal innovation is another strategic choice that is made by firms and this is reflected through spending on Research and Development (R&D) inputs. Lawless and Anderson (1996) point out in their study of microcomputer manufacturing firms, that innovation is related to firm performance in dynamic environments. Further, innovation speed enhances the organizational performance (Lawless & Anderson, 1996), and

increased R&D spending is positively related to firm performance (Chaney & Devinney, 1992). Based on the above arguments, the following hypotheses can be advanced:

Hypothesis 5: There will be a positive relationship between mergers and acquisitions and firm performance.

Hypothesis 6: There will be a positive relationship between firm innovation inputs and firm performance.

Strategic Choice as a Mediator

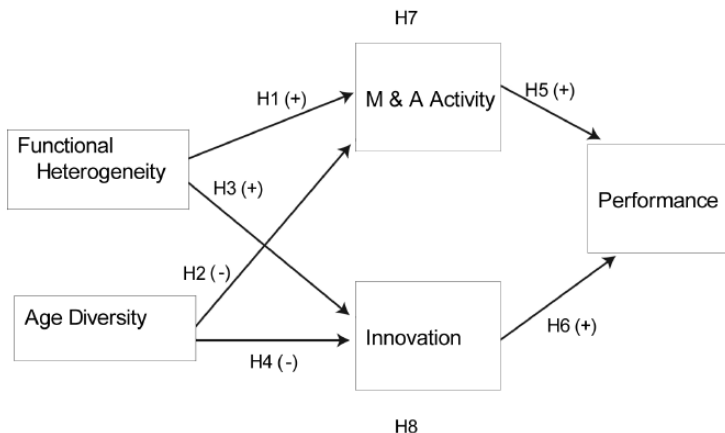
Considerable prior research has examined the direct effects of TMT characteristics on strategic choice or firm performance. For example, Gupta (1984) found support that TMT characteristics are related to firm strategies and performance. Yet, there are many that argue TMT characteristics will indirectly affect firm performance through strategic choice (Finkelstein & Hambrick, 1996; Priem, 1990). For example, we argue that a functionally diverse TMT will engage in acquisitions, which in turn will impact firm performance. In addition, we argue that functionally diverse executive teams will engage in strategic inputs such as innovation, which will provide positive returns to the firm. Age diversity, however, has received very little theoretical and empirical support regarding its effect on firm performance. Thus, we argue only the mediation effects strategic choice will have on functional diversity and firm performance, but not on social category diversity as an indirect predictor of firm performance.

Hypothesis 7: Mergers and acquisitions will mediate the effects of TMT functional diversity on firm performance.

Hypothesis 8: Internal innovation will mediate the effects of TMT functional diversity on firm performance.

The conceptual model is presented in Figure 1.

Figure 1: *Conceptual Model and hypothesized relationships*



Methodology

Sample

The sample for this study consisted of the TMTs of 66 firms operating in the telecommunications industry. The starting point was to compile the list of all acquisitions featured in the acquisition rosters in the quarterly issues of *Mergers and Acquisitions*. Only firms that engaged in mergers and acquisitions were included, since the focus of this study is on the mediation effects of mergers and acquisitions. To ensure that only acquisitions completed during 1999-2000 were included, all the partial acquisitions were eliminated from the study. Initially a sample of 70 companies was considered, but due to lack of available data for four companies, the number was reduced to 66.

In addition to the *Mergers and Acquisitions* quarterly issues, Annual Reports from the SEC filings of these companies were examined and the number of acquisition activities during the two-year span of the study was recorded. The data concerning the innovation inputs (which is measured as Research and Development expenditure as a percent of sales) is compiled both from the Annual Reports of the companies and from the Research Insight (Compustat database) for some companies (wherever the data was not available).

The size of the sample may be of concern here. However, some of the classic studies on TMTs involve small sample sizes. For example, Wiersema and Bantel (1993) studied 85 firms in examining the role of environment on TMT turnover, while West and Schwenk (1996) analyzed 65 firms in their study of TMT diversity-consensus and firm performance relationship. In addition, Singh and Montgomery (1987), Knight et al. (1999), Hopkins (1987), Yip (1982), and Miller and Friesen (1982) all had small sample sizes in their TMT studies with 105, 89, 64, 59, and 52 firms studied, respectively.

Measures

Some researchers prefer to compute demographic homogeneity as the sum of TMT heterogeneity index scores across all the demographic variables (e.g. gender, education) subtracting from a positive constant (e.g., West & Schwenk, 1996). We prefer to consider them separately, because the aggregate measure may not capture the individual impact (Bantel & Jackson, 1989).

Functional diversity is calculated using Blau's (1977) heterogeneity index $H = (1 - \sum i^2)$, where i = the proportion of the group in the i 'th category. A low H score represents functional homogeneity, whereas a high score means variability in the functional responsibilities among the members of the team. This measure is consistent with prior research (Knight et al., 1999). To determine the functional background of executives, we followed the procedures outlined in Wiersema and Bantel (1992), Knight et al. (1999), and Pegels, Song and Yang (2002). Information from proxy statements of SEC filings were used to classify senior executives (CEOs, presidents, COOs) based on a review of the individual's career background. If the CEO had a designated function associated with a previous title (for example, Senior VP of Finance), then the CEO was assigned to that function (i.e. finance). If the CEO

performed a variety of functions before becoming CEO, then the individual's functional perspective was reflected in his/her educational specialization as well as the length of his/her career in that particular function (Pegels et al., 2000).

Age diversity is calculated using the coefficient of variation computed as follows: Coefficient of Variation = (σ/x) , where σ is the standard deviation and x is the mean. This is consistent with previous research (Knight et al., 1999). Gender diversity, as a control variable, is calculated using Blau's (1977) heterogeneity index.

Strategic Choice Variables

Mergers and acquisitions (M&A) activity was measured using the count measure rather than the value of transactions. This is because (i) most transactions reported in Mergers & Acquisitions are without specific value involved in acquisitions of the companies involved, (ii) the frequency with which companies are involved in acquisitions depict the acquisition intensity, (iii) considering the acquisition value might distort the results because only valued acquisitions are taken into account, and (iv) count measures are consistent with previous research and hence become comparable (Davis, Diekmann, & Tinsgley, 1994; Haunschild, 1993; Hitt et al., 1996; Vermulen & Barkema, 2001).

The innovation inputs were measured using the R&D intensity (R&D expenditures as a percentage of sales), and this is consistent with previous research (Harrison, Hitt, Hoskisson, & Ireland, 1990; Hitt et al., 1996). For the purpose of this study, R&D intensity is calculated for the years 1999-2000.

The three-year average of the firm's Return on Assets (ROA) was used to measure organizational performance. The compound growth rate of ROA over a three year period was the most common measure used in numerous studies on TMT characteristics and organizational outcomes (Iaquinto & Fredrickson, 1997; Kim, Hwang and Burgers, 1989; Krishnan, Miller & Judge, 1997). All the data on ROA was gathered from the COMPUSTAT database.

Control Variables

Since prior organizational performance is expected to be related to present performance, it is necessary to control for prior performance (Hambrick & Schechter, 1983; Tushman & Romanelli, 1985). The three-year average of ROA prior to 1999 was used to control for past performance, and the data was obtained from the COMPUSTAT database.

Because organizational performance is also influenced by the size of the firm, it is necessary to control for firm size. Firm size was measured using the natural logarithm of total assets, which is consistent with previous research (Iaquinto & Fredrickson, 1997).

Another control variable is TMT size. The present study utilizes the definition consistent with prior research, which includes the two highest levels of management within the firm. These are top tier and second tier of management. The top tier consists of Chairman, CEO, President and COO. The second tier includes the most senior level of Vice Presidents listed for the firm. The sample of 66 companies had 636 individuals within top management teams, with the average size of the team being 9.5 members. The mean age of the members of the TMT was 49.4 years (with standard

deviation of 5.26). Members who are not on the list by virtue of age (over 65 years) are eliminated, thus controlling for normal retirements. This is consistent with the approaches followed by previous researchers (Puffer & Weintrop, 1991; Wiersema & Bantel, 1993).

Results

Means, standard deviations, and zero-order correlations are reported in Table 1. Our initial analysis of the descriptive statistics suggests that M&A activity and innovation have correlations of .65 and .63 respectively. Kennedy (1979) suggests that correlations of .8 or higher may be problematic from the viewpoint of multicollinearity. We also performed a statistical check for multicollinearity, using the variance inflation factor (VIF) of each independent variable. The largest VIF was less than 2, suggesting that multicollinearity should not be a problem (Kennedy, 1979).

Table 1: Means, Standard Deviations, and Intercorrelations (N=66)

Variable	Mean	S.D	1	2	3	4	5	6	7	8	9
1 Firm Size ^a	8.93	1.63	1.0								
2. Team Size	9.48	4.69	.19	1.0							
3. Past Performance	6.96	5.52	.38***	.02	1.0						
4. Age Diversity	.13	.05	-.22*	-.09	-.18	1.0					
5. Functional heterogeneity	.79	.08	.59***	.39***	.22*	-.13	1.0				
6. Gender diversity	.09	.13	-.12	.18	-.22*	.25**	.19	1.0			
7. Merger & Acquisition Activity	3.69	2.03	.57***	.08	.32**	-.39***	.49***	-.01	1.0		
8. Innovation	7.52	4.81	.45***	.01	.26**	-.30**	.43***	-.03	.64***	1.0	
9. Performance	6.43	3.40	.47***	.03	.23*	-.24**	.45***	.03	.65***	.63***	1.0

*p<0.1; **p<0.05; *** p<0.01

a. Measured as natural logarithm of total assets.

Multiple regression analysis was used to test the hypothesis that age diversity has a negative influence and functional heterogeneity has a positive influence on M&A activity and innovation. In addition, we checked for mediation of M&A activity and innovation in the relationship between functional heterogeneity and firm performance. The results are presented in Table 2.

As shown in Column 1 of Table 2, the control variables model explained 35 percent of variance in M&A activity ($F=8.06$, $p<.001$). In Model 2, we entered heterogeneity variables (Column 2). Functional heterogeneity is positively related to M&A activity ($\beta=.26$, $p<.05$) and age diversity is negatively related to M&A activity ($\beta=-.29$, $p<.05$) thus supporting H1 and H2. The main effects model explained 47 percent of the variance in M&A activity ($F=8.53$, $p<.001$). Introduction of heterogeneity variables increased the explanatory power of the model by 12 percent ($\Delta F=4.60$, $p<.001$).

Columns 3 and 4 from Table 2 show the results of our analysis of effect of heterogeneity on internal innovation. As shown in Column 3, the control variables model explained 22 percent of variance in internal innovation ($F=4.43$, $p<.001$). In

Model 2 we entered heterogeneity variables (Column 4). Functional heterogeneity is positively related to internal innovation ($\beta = .32, p < .05$) and age diversity is negatively related to innovation ($\beta = -.32, p < .05$), thus supporting H3 and H4. The main effects model explained 32% of the variance in internal innovation ($F = 4.77, p < .001$). The introduction of heterogeneity variables increased the explanatory power of the model by 10 percent ($\Delta F = 4.60, p < .001; \Delta R^2 = 10.6$).

Table 2: Regression Analysis of TMT Heterogeneity on M&A Activity and Innovation

Variables	DV= M&A Activity		DV= Innovation	
	Model 1 (Column 1)	Model 2 (Column 2)	Model 1 (Column 3)	Model 2 (Column 4)
Step 1: Control Variables				
Past Performance	.13 (1.16)	.09 (.93)	.09 (.77)	.07 (.63)
Firm Size	.54*** (4.69)	.35** (2.67)	.43*** (3.49)	.23 (1.57)
Team Size	-.05 (-.46)	-.14 (-1.38)	-.08 (-.70)	-.19* (-1.65)
Gender Diversity	.86 (.79)	.09 (.89)	.66 (.55)	.05 (.39)
Step 2: Main Variables				
Age Diversity		-.29** (-2.92)		-.23** (-1.99)
Functional Heterogeneity		.26** (2.00)		.32** (2.13)
R ²	.35	.47	.22	.32
Adjusted R ²	.30	.41	.18	.26
F-Value	8.06***	8.53***	4.43***	4.77***
Change in R ²		.12		.10
Change in F-Value		4.60**		3.08**
df	4,62	2,59	4,62	2,59

*** $p < .001$, ** $p < .05$, * $p < .10$

Standardized coefficients are reported, with t-values in parentheses

Results of mediation analysis of M&A activity and innovation on performance are reported in Table 3. To test mediation, first control variables were entered in Step 1. Main variables are entered in Step 2. Column 1 from Table 3 shows the results of the main effects model. Functional heterogeneity ($\beta = .30, p < .05$) is significantly related to firm performance. When the mediator variable M&A was entered in Step 3 (column 2), the beta coefficients of functional heterogeneity became non-significant and the beta coefficient of M&A activity was statistically significant ($\beta = .51, p < .01$). The M&A mediator model (Model 2) explained 46 percent of the variance in firm performance ($F = 6.94, p < .001$; adjusted $R^2 = .39$; change in $R^2 = .14$; $\Delta F = 14.60$) thus supporting H5 and H7.

We tested for the mediation effect of firm innovation by entering internal innovation in Step 3 (Column 3). Main variables were entered in Step 2. Column 1 from Table 3 shows the results of the main effects model. Functional heterogeneity ($\beta = .30, p < .05$) is significantly related to firm performance. The results suggest that the beta coefficient for innovation is statistically significant ($\beta = .47, p < .01$) and the beta coefficient of functional heterogeneity became non-significant thus supporting both H6 and H8. Model 3 (innovation as a mediator) explained 47 percent of the variance in firm performance ($F = 7.23, p < .001$; adjusted $R^2 = .40$; change in $R^2 = .15$; $\Delta F = 15.98$).

When M&A activity and innovation were entered as mediators in Step 3 (Column 4), results support full mediation of M&A activity and innovation. The beta

Table 3: Results of Mediation Analysis of M&A Activity and Innovation on Performance

Variables	DV=Performance Model 1 (Column 1)	DV=Performance Model 2 (Column 2)	DV=Performance Model 3 (Column 3)	DV=Performance Model 4 (Column 4)
Step 1: Control Variables				
Past Performance	.05 (.41)	.01 (.01)	.01 (.41)	-.01 (-.09)
Firm Size	.28** (1.94)	.10 (.77)	.17 (1.33)	.08 (.66)
Team Size	-.18 (-1.53)	-.10 (-1.00)	-.09 (-.84)	-.06 (-.64)
Gender Diversity	.08 (.72)	.04 (.36)	.06 (.60)	.04 (.37)
Step 2: Main Variables				
Age Diversity	-.16 (-1.43)	-.01 (-.13)	-.05 (-.55)	.01 (.14)
Functional Heterogeneity	.30** (2.01)	.17 (1.20)	.15 (1.10)	.10 (.77)
Step 3: Mediator				
M&A Activity		.51*** (3.82)		.34** (2.48)
Innovation			.47*** (3.99)	.33** (2.71)
R ²	.32	.46	.47	.52
Adjusted R ²	.25	.39	.40	.45
F-Value	4.60***	6.94***	7.23***	7.76***
Change in R ²		.14	.15	.19
Change in F-Value		14.60***	15.98***	11.78***
df	2,59	1,58	1,58	2,57

*** p<.001, ** p<.05, *p<.10

Standardized coefficients are reported, with t-values in parenthesis

coefficients for M&A activity ($\beta = .34$, $p < .05$) and for innovation ($\beta = .33$, $p < .05$) were statistically significant and explained 52 percent of variance in firm performance. The model explained an additional 19 percent of the variance in firm performance when compared to the main effects model ($F = 7.76$, $p < .001$; adjusted $R^2 = .45$; change in $R^2 = .19$; $\Delta F = 11.78$), thus providing support for full mediation of both strategic variables.

Discussion

The primary objective of this research was to examine the relationship between TMT heterogeneity and performance, mediated through the strategic choice variables of acquisition activity and innovation inputs. At a time when upper echelons theory (Hambrick & Mason, 1984) has paved the way for several studies on TMT demographic variables to show their effect on firm performance, inconclusive and mixed results for over two decades have been prompting researchers to conduct tests for the direct relationships between the heterogeneity, content (choice), and firm performance. In fact, Hambrick & Mason (1984) have postulated that TMT characteristics would affect firm performance directly, as well as indirectly through strategic choices. While some studies have considered an aggregate measure of heterogeneity and others have studied demographic variables in isolation, results have been inconclusive (Finkelstein & Hambrick, 1996).

Ignited by some of the non-significant studies, the present research was aimed at unraveling the mediated relationship between the TMT heterogeneity and firm performance through strategic choice variables. Contrary to non-significant findings of West and Schwenk (1996), the present study found significant relationships

between demographic variables, strategic choice variables, and firm performance. The results suggest that demographic variables need to be considered independently rather than aggregately (i.e. global measures) because individual demographic variables may have different outcomes. For example, age diversity was negatively related to strategic choice variables whereas functional heterogeneity was positively related to both strategic choice variables and firm performance. The litmus test shows significant relationships between demographic variables of TMT and firm performance mediated by strategic choice variables, M&A activity, and innovation.

The results from this study are encouraging in that they provide support for upper echelons theory. The present study also provides avenues for further research. The effect of organizational culture, trust of TMT members as related to “team” years, and prior successes of the team (not just the tenure of the CEO or other top tier members), are areas of study that could be explored in future research. As well, interpersonal trust, cultural differences, international experiences of team members, and the CEO's influence on members may be additional mediator variables that can be explored in the relationship between heterogeneity and firm performance. For example, the role of a CEO in influencing members of a cognitively diverse TMT to promote cohesion and reduce interpersonal (affective) conflict may influence firm performance. Diversity of opinions may negatively affect group cohesion (Hambrick, Cho, & Chen, 1996). Heterogeneous teams tend to be non-cohesive, at least in the short run, as executives challenge opinions put forth by other team members; this may eventually precipitate affective conflict (Pfeffer, 1983; O'Reilly, Snyder, & Boothe, 1993). The greater the power exerted by the CEO in moderating the relationships between heterogeneous teams and consensus, the greater will be the impact on the team's strategic choices and the resulting performance.

Examining the role of interpersonal trust among the members of the TMT could be another interesting extension of the present research. So far research has been scant on the role of trust on TMT decision making, with the exception of one study by Dooley & Fryxell (1999). It was empirically demonstrated that perceptions of loyalty within teams has the potential to strengthen the relationship between dissent and decision quality, while the perceptions of competence of team members strengthens the relationship between dissent and decision commitment. It might be useful, therefore, to consider the effect of various components of trust while examining the relationships between heterogeneity in the TMT, strategic choice, and performance outcomes.

This study found that functional heterogeneity is positively related to strategic choice variables and firm performance; therefore, it is likely that functional heterogeneity stimulates cognitive conflict. Conversely, since age diversity is negatively related to strategic choice variables, it is likely that age diversity is conducive to affective conflict. Therefore, another potential area of research is to identify the linkage between the aspects of heterogeneity that contribute to cognitive conflict and those that promote affective conflict. Without separation of the different aspects of diversity and their effects on conflict, the composite measure becomes suspect, the effects are negated, and the results are mixed and inconclusive.

Overall, the effect of TMT heterogeneity on strategic choices and firm performance places a premium on understanding top management team demographic

characteristics and their roles on strategic choices and validates upper echelons theory. Quite conceivably, richer understanding of the team demographic characteristics is expected to benefit practitioners and theorists alike.

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The Relationship Between Job Demands and Key Performance Indicators: Moderating Effects of Job Resources in Call Centers

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The present study tested the direct and interactive effects of job resources (i.e., control, training, supervisor support, task identity, task significance, skill variety, and feedback) on the relationship between job demands (i.e., role demands, workload demands, and work pacing demands) and multiple indicators of performance (i.e., call duration, number of calls, and customer waiting time) in two call centers. Overall, our study found (1) that training moderated the relationships between role demands and performance, as well as customer waiting time and performance, (2) significant moderating effects of three job content variables (task identity, task significance, feedback) on the relationship between workload demands and performance outcomes, and (3) that control and feedback both interacted with work pacing demands to predict performance. Implications for managing call center employees and future research directions are discussed.

During the last 30 years, various studies of the now extensive literature on work stressors and negatively perceived job characteristics have concluded that prolonged exposure to conflicting and ambiguous role demands, heavy workloads, not enough

resources, and low decision latitude or control is dysfunctional to the organization and its members. More specifically, these have all been found to negatively affect psychological well-being, physical health, and job satisfaction (see Fox, Dwyer & Ganster, 1993; Ganster & Schaubroeck, 1991; Halbesleben & Buckley, 2004; Schaubroeck, Jones, & Xie, 2000). Other research findings report evidence of stressful demands leading to higher health care costs and more insurance claims (Ganster, Fox & Dwyer, 2001), higher rates of absenteeism and turnover (Bakker, Demerouti, & Schaufeli, 2003; Dwyer & Ganster, 1991; Spector, Dwyer, & Jex, 1988) and, to a lesser extent, decreased job performance (Dyne, Jehn, & Cummings 2002; Motowidlow, Packard, & Manning, 1986; Tuten & Neidermeyer, 2004).

The vast majority of studies in this area of research have included employees' mental and physical well-being as outcomes (e.g., somatic complaints, anxiety, burnout, indicators of cardiovascular health). Less attention has been given to the effect that these demands may have on actual work performance (see Baker, Demerouti, Verbeke, 2004; Beehr, 1995; & Jex, 1998 for a review). Jex (1998) suggests that job performance as a criterion has been neglected primarily because it is a complex, multidimensional variable that is often difficult to measure accurately. More specifically, there is often low variability in performance criterion measures due to a substantial amount of error in ratings. In essence, even though employees may actually perform at different levels, they often receive similar performance evaluations. Furthermore, it is difficult to obtain multiple measures of performance that include objective indicators (Beehr, Jex, Stacy & Murray, 2000). As a result, researchers have focused more on outcomes that are thought to affect the ability and motivation of the individual worker to perform (e.g., mental and physical health indicators commitment, and job satisfaction), rather than on actual performance outcomes themselves. Those studies that have included performance as an outcome have obtained a report of employee performance from either a supervisor, a peer, or, more commonly, the employee's own self-evaluation (Bakker et al. 2004; Jex, 1998), rather than from objective performance indicators.

The present study tries to gain insight into the effects that stressful job demands have on actual key performance indicators in a sample of call center employees. In addition, by extending the job demands-job resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), we examine whether certain job characteristics or job resources differ in their potential to reduce the negative effects that these job demands have on employees' actual job performance.

The Job Demands-Job Resources Model

Although employees in different occupations may be confronted with different types of job characteristics, the Job Demands-Job Resources Model suggests that most of them fall into two broad categories: job demands and job resources. *Job demands* can be social, physical, psychological, or organizational, and they represent aspects of the job that require considerable emotional or cognitive effort on the part of the employee, resulting in certain physiological, emotional, and/or psychological costs to the workers. Role conflict, heavy workloads, time pressures, and demanding

characteristics of the work environment are some examples of job demands. When dealing with such demands requires such high effort that the employee cannot adequately recover (Meijman & Mulder, 1998), the demands become sources of stress. This conceptualization of job demands is based on the influential Job Demands-Job Decision Latitude model proposed originally by Karasek (1979), but expands job demands to include other work characteristics, such as emotional demands, task characteristics, and problems with equipment (e.g., computers), in addition to Karasek's (1979) original conceptualization of workload and time pressure demands.

In addition to job demands, the (JD-R) model defines job resources as those physical, psychological, or social aspects of the job that (1) reduce the job demands and associated psychological or physical costs, (2) function to achieve work goals, or (3) stimulate personal growth and development. Resources are found at the organizational level (e.g., career opportunities, pay, security), at the interpersonal level (e.g., social support, team climate), at the level of organizing work (e.g., role clarity, participation, control), and at the task level (e.g., feedback, skill variety, task identity). The task level resources are essentially the classic job characteristics presented by Hackman & Oldman (1976).

In essence, the model proposes that employees who face high demands may exhaust their mental and physical resources, and this eventually leads to various health problems or burnout (e.g., Bakker, Demerouti, & Schaufeli, 2003). A second proposition suggests that the presence of adequate resources (e.g., social support, job knowledge, control, ability to use a variety of skills, performance feedback) tends to reduce the harmful effects that job demands have on well-being, and may actually foster motivation and performance.

Theoretically, then, this is consistent with the predictions and findings of Karasek's (1979) Job Demands-Job Decision Latitude model of stress. However, it expands it by suggesting that different job resources can buffer different job demands or characteristics. Whereas Karasek (1979) posits that higher control or decision latitude overall may reduce the harmful effects that demands have on health and well-being, the (JD-R) model argues that many types of demands and resources may interact differently to predict various health outcomes.

Recent research using the (JD-R) model as a theoretical foundation has tested either a mediational or an interactional model. Bakker et al. (2003), in a study of call center employees, found that job demands predicted absenteeism indirectly through their relationship with burnout or exhaustion, and job resources predicted intent to turnover indirectly through their relationship with organizational commitment, operationalized as employee involvement. Additionally, Bakker, Demerouti, & Euwema (2005) also tested the moderating effects that job resources (e.g., autonomy, feedback) might have on stressful demands (e.g., work overload, emotional demands) in predicting job burnout. That is, they tested whether certain resources act as a buffer against the harmful effects of various demands at work. The authors found mixed results; however, in several of the interactions tested, workers reported more burnout (i.e., exhaustion) when high job demands coincided with low resources. More specifically, they discovered that autonomy and feedback seemed to buffer the negative effects of work overload. This pattern of results was also found with another type of

demand, namely work-home interface—a form of role conflict. Clearly, this is quite consistent with the results from studies of Karasek's (1979) Job Demands-Job Decision Latitude model where job latitude, defined as the "individual's potential control over his tasks and his conduct during the work day" (Karasek, 1979, pp. 289-290), has received considerable support as a moderator (see e.g., Dwyer & Ganster, 1991; Fox, Dwyer & Ganster, 1993; Karasek, 1979; Schaubroeck, Jones & Xie, 2001). Despite the findings from studies on both the Job Demands-Job Decision Latitude model and the (JD-R) model, most researchers have not obtained information about the effects on performance outcomes; yet, the model suggests that the presence of adequate resources should also foster motivation and enhance performance, as well as reduce problems with mental and physical health.

A more recent exception is a study by Bakker, Demerouti, & Verbeke (2004) that utilized a combination mediation/interaction model to examine the relationship between job characteristics, burnout, and others' ratings of performance. This study distinguished between in-role performance and extra-role performance and used colleagues' perceptions of employees' performance; it did not employ any objective performance indicators. Bakker et al. (2004) suggest that one aspect of the (JD-R) model that has received less attention is moderator hypotheses in predicting health, and specifically, job performance. They suggest that more work is needed to affirm the notion that job resources might actually buffer the harmful effects of job demands on actual work performance.

Present Study

The primary aim of this study is to examine the potential interaction between job demands (i.e., role demands, workload demands, work pacing demands) and job resources (i.e., control, supervisor support, training, task identity, task significance, skill variety, feedback) to see if and how these resources buffer the negative effects of stressful job demands on actual performance indicators.

We chose to use call center employees as our sample for a variety of reasons. First, call centers have become increasingly common across a variety of industries world-wide, including telecommunications, retail, insurance, travel, mail order, and utilities, among others. In fact, many businesses rely on call centers exclusively to handle specific billing issues, new accounts, product and service information, rebate information, and customer complaints. Second, although call centers have benefited many organizations by reducing costs, Holman (2002) has argued that the actual call center employees may benefit much less. In other words, though some workers are satisfied with call center work, for others it is stressful, demanding, and offers relatively low wages. Call center employees often perform multiple tasks (usually on a computer) while simultaneously on the phone with customers. While working, they frequently encounter interruptions, as well as demanding and rude customers, and they continuously face performance requirements for higher quantity, efficiency, and quality of work. Third, call centers generally track their associates' performance by keeping objective records of call quantity and duration, as well as by engaging in more subjective evaluations of performance quality done by supervisors (e.g., call quality monitoring).

Recent research on call centers has supported the notion that role conflict, lack of training, and job control negatively affect mental well being (e.g., anxiety, depression, exhaustion), but have neglected to examine the effect that high job demands and low job resources might have on the actual job performance of the employees (e.g., see Bakker, Demerouti, & Schaufeli, 2003; Holman, 2002; Holman, Chissick, & Totterdell, 2002; Zapf, Isic, Reichtoldt, & Blau 2003). The relationships among these variables are depicted in Figure 1. Based on the general predictions of the (JD-R) model and the aforementioned findings, we tested the following hypotheses:

- Hypothesis 1: There will be a direct, negative relationship between job demands (i.e., role demands, workload demands, work pace demands) and job performance.
- Hypothesis 2: There will be a direct, positive relationship between job resources (i.e., control, training, skill variety, task identity, task significance, feedback, supervisor support) and job performance.
- Hypothesis 3: Job demands will interact with job resources to predict job performance, such that the negative impact of job demands will be greater under conditions of low resource availability.

Methods

Sample

Participants for the study were drawn from two inbound call centers in northwest Ohio. The first call center (1) was a regional office of a national promotions organization employing approximately 138 customer service associates. 63 percent of the study participants (n=91) came from this call center. These workers were all engaged in a similar job that required them to take inbound calls from customers across the United States. The nature of the calls consisted of taking orders for customized products and assisting with questions associated with a customer's order.

The second call center (2), employing approximately seventy-five customer service associates, was a local provider of cable television and internet services. It provided 37 percent of the participants represented in the study (n=54). The call center employees in this case all were engaged in taking calls from local customers about their existing or new cable or internet services.

Each call center gave objective performance data directly to the researchers, but permitted us to collect individual data via questionnaire from voluntary participants. In both cases we were able to collect similar data from both organizations on the individual employees and from the organizational performance records. Thus, for all the analyses conducted, the data from both centers were aggregated, resulting in a sample size of 145 subjects. The average age of the respondents across both samples was 32.47 years, and their average tenure in the organization was 3.86 years. 90 percent of all respondents were female.

Procedure

Upon receiving approval to proceed with the project from the top management of

each organization, group meetings were conducted with the potential participants of the study to explain their involvement. Following this, the subjects were asked to voluntarily complete the self-report measures on the independent variables, as well as to provide demographic information. Performance data were also collected from existing company records. Although anonymity was not guaranteed to the participants, confidentiality was assured.

As part of the agreement with the participating organizations, we asked that they provide time for participants to complete the measures while at work and, in return, incentives (pizza and \$5 gift certificates) were provided to increase participation. After all questionnaires were returned to the researchers, existing organizational data then was gathered concerning individual performance indicators for the previous and subsequent twelve month periods.

Measures

Existing measures with established reliabilities, along with objective performance data, were used to assess the various independent and dependent variables. The measures fall in two general categories: individual employee responses to questionnaire items and organizational records of job-specific key performance indicators for each employee.

Role Demands. The extent to which respondents experience role ambiguity and role conflict was assessed using a scale by House, Schuler and Levanoni (1983). Ten items asked employees to indicate how descriptive (1 = not at all descriptive, 4 = very descriptive) statements were of their jobs. Example items included "Receiving unclear instructions about what needs to be done," "Working with two or more persons who operate quite differently," "Working on unnecessary things." Reliability for this measure was .87.

Work Demands. The Caplan, Cobb, French, Harrison, and Pinneau (1975) scale assessed respondents' perceptions of the amount of their workload (e.g., "How often is there a great deal to be done?") and the pace of their work (e.g., "How often does your job require you to work very fast?"). The workload demands measure was comprised of five items (Cronbach's $\alpha = .64$), and the work pace measure was comprised of four items (Cronbach's $\alpha = .70$). On this scale, a "1" indicated low amounts, and a "5" indicated high amounts.

Control. Control perceptions were measured using a version of the 22-item scale reported in Dwyer and Ganster (1991). The aim of this scale is to directly measure control beliefs by asking subjects how much control they have in a variety of work domains, including the variety of tasks performed, the order of task performance, the amount of work, scheduling of rest breaks, pacing, procedures and policies at work, and the physical arrangement of the work environment. Reliability for this measure was .82.

Job Characteristics. Four job characteristics (task identity, task significance, skill variety, and feedback) were measured with the Job Diagnostic Survey (Hackman & Oldham, 1980). Based on the prior research findings discussed earlier (e.g., Spector & Jex, 1991; Kelloway & Barling, 1991) we decided not to aggregate these characteristics into one measure, but to measure and test each characteristic

independently. Skill Variety (e.g., “The job requires me to use a number of complex or high-level skills”) was measured using three items. Reliability for this measure was .78. Task Identity (e.g., “The job provides me the chance to completely finish the pieces of work I begin”) was measured using three items, and reliability was .69. Task Significance (e.g., “The job itself is not very significant or important in the broader scheme of things”) was measured with three items and Cronbach's alpha was .65. Feedback was a combined six-item measure of feedback from the job itself and from others (e.g., “The job can be done adequately by a person working alone—without talking or checking with other people”) with a Cronbach's alpha of .82. We decided not to include the traditional measure of Autonomy from the JDS, because we already had a measure of control and felt that the JDS scale would be redundant.

Training. Prior customer service training was measured by asking respondents to indicate how many hours of this type of training they had received to date as part of their jobs with the call center. The reported range was from 0 to 78 hours ($\bar{x} = 57.88$).

Supervisor Support. Supervisor support was measured using a version of the Likert-style questionnaire developed by Beehr, King, and King (1990). Respondents were asked how frequently (1=Never, 5=Always) they shared information with their supervisors, how often they talked with their supervisors about non-work events, etc. Cronbach's alpha for this scale was .90.

Work Performance. Key indicators of performance were gathered from organizational records for one calendar year prior to the collection of questionnaire data and one calendar year following. Both organizations record these key indicators monthly for both individual employees and the overall department. For this study, we looked at performance over the entire two-year period of time. First, the correlations between the first and second year for each indicator were examined to make sure there was no significant difference between the two. As a result of this, in subsequent analyses, both years' performance data were aggregated for each participant and an average indicator was computed for each of the three performance indices. This two-year aggregation was thought to provide a much more accurate and reliable representation of an individual's performance.

The following key performance indicators were used in this study: “Average Call Duration” is a measure of the amount of time (in minutes) an associate actually is on the phone with the customer; “Average Number of Calls” is a measure of the total number of monthly calls taken by the associate. “Average Customer Waiting Time” is a measure of the amount of time (in minutes) an associate keeps a customer on hold while checking information or doing other tasks related to the call, but is not engaged in conversation with the customer.

The growing use nationally and internationally of call centers has made their efficiency paramount for the organizations that use them; thus, the requirement for call center employees to field a large volume of calls and to do so efficiently and effectively keeps call centers in business. Both participating call center organizations in this study considered higher performance to equate with lower average call duration, lower average waiting time, and higher average number of calls. Means and standard deviations for all performance measures can be found in Table 1.

Control variables. Because individual demographic differences are often correlated with

both independent and dependent variables of interest, “age” and “organizational tenure” were used as control variables in all tests of hypotheses. In addition, “organization” was also controlled for, since it was likely that the quantity and nature of the calls in each organization may contribute to variability in the individual worker’s performance.

Table 1: Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Org ID	1.37	.49	-															
2. Org Tenure	3.86	4.11	-.11	-														
3. Age	32.47	9.98	-.10	.25**	-													
4. Avg. Duration of Call	22.82	21.54	.76***	.03	-.03	-												
5. Avg. Number of Calls	291.19	295.68	-.44**	-.11	.18	-.46***	-											
6. Avg. Waiting Time	1.42	.54	.83***	.05	-.04	-.10	-.36**	-										
7. Hrs. of Customer Training	57.88	14.35	-.05	-.19*	-.03	.01	-.01	-.10	-									
8. Perceived Control	2.97	1.47	.29**	.00	-.02	.34**	-.12	.29**	.25**	-								
9. Workload	3.32	.53	.16	.02	.07	.31**	-.20*	.23*	.08	.17	-							
10. Work Pace	3.14	.48	.18	-.07	.06	.06	-.04	.01	.17	-.20*	.37**	-						
11. Role Demands	2.24	.63	.09	-.20*	-.49***	-.12	-.13	.17	.09	-.31**	.21*	.09	-					
12. Task Identity	2.98	.58	.17	-.03	.02	.30**	-.20*	.33**	.05	.05	-.03	-.09	-.15	-				
13. Task Significance	3.19	.63	.08	-.10	.20*	.04	-.03	.10	.07	.17	.06	.26**	-.14	.05	-			
14. Skill Variety	2.67	.65	.08	.06	.17	.14	-.25*	-.02	-.02	.13	.20*	.09	-.05	.13	.11	-		
15. Feedback	2.83	.72	.14	-.21*	.14	.16	-.03	.13	.06	.25**	-.01	.14	-.36**	.26**	.30**	.09	-	
16. Supervisor Support	2.48	.73	.01	.02	.14	.05	.04	.09	-.10	.18	.14	.12	-.17	-.07	.13	.06	.32**	-

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

Data Analysis

The individual employee is the level of analysis for our study. The general analytic strategy is hierarchical multiple regression analysis to test the direct, main effects of the job demands and job resources on the performance indicators, as well as the interactive effects of the job resources.

Each of the three dependent variables was tested using hierarchical multiple regression in which the control variables were entered on step 1. In step 2, the independent variables of job demands (i.e., workload, work pace, and role demands) and job resources (i.e., control, training, task identity, task significance, skill variety, feedback, and supervisor support) were entered. In step 3 we entered each of the interaction terms—i.e., each of the job demand variables multiplied by each of the job resource variables.

Results

Direct Effects

Table 1 presents the means, standard deviations, and correlations for the variables. Younger workers and those workers with less tenure in the organization experienced greater role demands. This is no doubt due to their lack of experience with the initial ambiguity and role conflict often associated with a new job. There was no significant relationship for any of the control variables with work pace or workload demands. Lower tenured workers reported receiving more job feedback and more training, while workers younger in age did not perceive as much task significance in their jobs as workers older in age.

The role demand and workload demand measures were positively correlated with each other ($r = .21$, $p < .05$), as was workload and work pace ($r = .37$, $p < .01$). As would be expected, role demand ($r = -.31$, $p < .01$) and work pace ($r = -.20$) were negatively correlated with control.

Perceived workload demands were significantly related to all three objective performance measures: call duration ($r = .31, p < .05$), number of calls ($r = -.20, p < .05$), and wait time ($r = .23, p < .05$). Conversely, role demands and work pace do not seem to correlate with work performance in this study.

Significant relationships were found for control with two out of the three dependent variables, call duration ($r = .34, p < .01$) and waiting time ($r = .29, p < .01$), as well as with training ($r = .25, p < .01$), indicating that more training seemed to engender greater perceptions of control on the job. Task identity was also found to vary with all three objective performance measures: call duration ($r = .30, p < .01$), number of calls ($r = -.20, p < .05$), and waiting time ($r = .33, p < .01$). Skill variety ($r = -.25, p < .05$) is related to number of calls. Notice that an *opposite* relationship exists for duration, waiting time, and number of calls, such that more control and higher task identity are felt as the duration of calls and waiting time increases, but task identity and skill variety decrease as number of calls increase.

In the case of the relationships within the job resources themselves, feedback was positively correlated with control ($r = .25, p < .05$), with task identity ($r = .26, p < .05$), with task significance ($r = .30, p < .01$), and with supervisor support ($r = .32, p < .01$). Training was not correlated with any other variable except control, as mentioned before. Overall, these direct relationships indicate that job resources—in this case, control, training, skill variety, feedback, task identity, task significance, and supervisor support—do relate to workers' perceptions of some of their job demands and their actual job performance. However, the two organizations in this study considered higher performance to be lower call duration and higher number of calls. The findings from these direct relationships suggest that employees who perceive that they have greater job resources spend more time on the phone with customers and take fewer calls. We explore this in more detail by looking at the moderating effect of these job resources on the relationships between job demands and objective indicators of performance.

Moderating Effects of Job Resources on Job Demands-Performance Relationships

Based on the theory that having adequate and available resources will help reduce the stressful nature of job demands and result in higher performance, we tested each of the seven job resource moderators and their effects on the demands-performance relationship. We present the three job demands (role, workload, and work pace) and their interactions in Tables 2, 3 and 4 for comparison purposes. Additionally, in order to get a better understanding of the form of significant interactions, we plotted them and provide one example for each performance dimension in Figures 2, 3 and 4.

Role Demands

Training was the only job resource that significantly moderated the role demands-call duration relationship ($\beta = -1.27, p < .05$). Our results show that as role demands increase, training plays an important part in how long a call center employee stays on the phone with the customer. We alluded earlier to the fact that role demands did not correlate with any of the performance measures; however, as this test of the moderating effect of training shows, call duration actually increases as role demands increase for those with higher levels of training, a finding opposite of what we

predicted. We might explain this by noting that training provides more knowledge and ability to the individual employee. As such, even in the face of conflicting and ambiguous demands on the worker, more training allows them to answer questions and solve problems for the customer, a result that likely takes longer on the phone, but is more satisfactory for the customer.

Table 2: Regression of Performance Measures on Role Demands and Job Resources

Independent Variable	Avg. Call Duration			Avg. Number of Calls			Avg. Waiting Time		
	R ²	Std Err	β	R ²	Std Err	β	R ²	Std Err	β
Step 1									
Org ID			-.06			.12			.01
Org tenure			-.30			.17			-.01
Age			.02			-.28			-.03
	.07	.97		.03	303.87		.17	.51	
Step 2									
Customer Service Training			.17			.50			.75
Perceived Control			-.54			.02			.02
Supervisor Support			-.21			.28			.05*
Task Identity			-1.12			-1.37**			.02
Task Significance			.00			-.98*			-.14*
Skill Variety			-.47			-.23			.01
Feedback			.79			1.75**			-.05
Role Demands			-2.71			1.20			-.05
Workload			-.03			-.02			.06
Work Pace			-.21			-.07			.07
	.29	.95		.13	211.09		.22	.51	
Step 3									
Role*Control			1.09			-.20			-.05
Role*Training			1.27*			-.49			.01
Role*Significance			.15			1.48*			-.09
Role*Identity			1.51			1.92**			.10
Role*Feedback			-1.20			1.89**			.00
Role*Variety			.55			.62			-.01
Role*Support			.54			-.37			-.21
	.38	.89		.36	302.99		.33	.50	
Overall Model F	2.646*			7.584**			1.51		
df	19			19			19		

¹ Regression weights are standardized coefficients taken at the final step of the equation

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

Three job resources, Feedback ($\beta = 1.89$, $p < .01$), Task Identity ($\beta = 1.92$, $p < .01$), and Task Significance ($\beta = 1.48$, $p < .05$) interacted with role demands to predict number of calls. In its relationship with number of calls, as role demands increase, employees who perceive they have more job content resources take more calls. This may be due to the fact that as they face increased and conflicting demands (i.e., help the current customer vs. respond quickly to the next customer), they choose to do what they are primarily rewarded for doing, acting efficiently. Figure 2 portrays the task identity-role demands interaction with number of calls.

Workload Demands

Training provided the only job resource interaction with workload. The significant interactions were between workload and training in predicting both call duration ($\beta = 1.16$, $p < .05$) and waiting time ($\beta = -2.43$, $p < .05$). Figure 3 portrays the relationship between workload and the amount of wait time at high and low levels of training. It is clear from this finding that waiting time virtually remains the same (higher) when training is lower, even as workload demands increase. However, there is a noticeable drop in waiting time at high levels of training. Again, employees who receive more

training in solving customers' problems or to sort out their issues can reduce the time on hold, even in the face of increasing workload.

Table 3: Regression of Performance Measures on Workload and Job Resources

Independent Variable	Avg. Call Duration			Avg. Number of Calls		
	R ²	Std Err	β ¹	R ²	Std Err	β
Step 1						
Org ID			.96*			2.45**
Org tenure			-.34			-.19
Age			.04			.31
	.07	.97		.06	308.78	
Step 2						
Task Identity			.41			-.78
Skill Variety			-.13			-.36
Task Significance			-.37			-.46
Feedback			.80			-1.49
Perceived Control			.27			.68
Customer Service Training			.12			-.56
Supervisor Support			-1.23			.45
Workload			-.26			-.04
Work Pace			.05			-1.18
Role Demands			-.22			.02
	.30	.94		.17	311.89	
Step 3						
Workload*Identity			.46			.68
Workload*Significance			-.01			.78
Workload*Variety			-.40			.27
Workload*Feedback			-1.21			1.65
Workload*Control			-.29			-1.06
Workload*Training			1.16*			-.65
Workload*Support			.66			.63
	.34	1.01		.24	313.45	
Overall Model F	3.834*			.99		
df	19			19		

¹ Regression weights are standardized coefficients taken at the final step of the equation

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

Table 4: Regression of Performance Measures on Work Pace and Job Resource

Independent Variable	Avg. Call Duration			Avg. Number of Calls			Avg. Waiting Time		
	R ²	Std Err	β ¹	R ²	Std Err	β	R ²	Std Err	β
Step 1									
Org ID			.67*			.76*			-.55*
Org tenure			-.24			-.18			.14
Age			.04			.25			-.12
	.01	6.74		.11	309.47		.03	.59	
Step 2									
Customer Service Training			1.72			1.59			.25
Perceived Control			.57*			.26			-.05
Supervisor Support			-1.26			-.25			-.37
Task Identity			.77			.37			.90
Task Significance			.10			1.23			.47
Skill Variety			-1.06			-.70*			.04
Feedback			1.20			-.20			2.16*
Role Demands			-.20			-.06			.17
Workload			.00			-.08			-.09
Work Pace			1.09			1.35			2.17
	.24	6.53		.13	315.39		.08	.58	
Step 3									
Workpace*Identity			-1.15			-.52			-1.09
Workpace*Significance			-.23			-1.97			-.50
Workpace*Variety			1.03			.53			.03
Workpace*Feedback			-1.78			.23			-2.64*
Workpace*Control			-.78*			-.45			.01
Workpace*Training			-1.36			-1.55			-.33
Workpace*Support			1.67			.32			-.28
	.30	6.71		.22	319.34		.18	.53	
Overall Model F	2.89*			1.80			3.44*		
df	19			19			19		

¹ Regression weights are standardized coefficients taken at the final step of the equation

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

On the other hand, call duration increases at high levels of training (much the same way it operated for role demands). Thus, it is likely that despite increasing demands of the job, highly trained call center employees will focus on solving the problem or answering the question, no matter how long it takes, rather than focusing primarily on the sheer number of calls they take.

Figure 1: Model of the Job Demands-Performance Relationship with Job Resources as Moderators

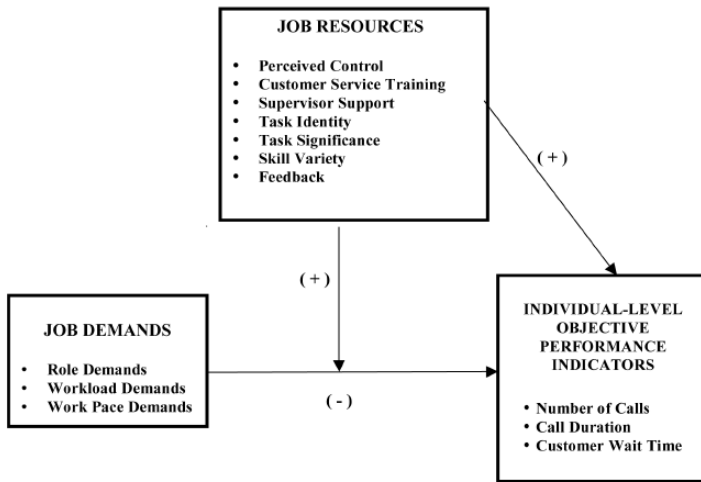
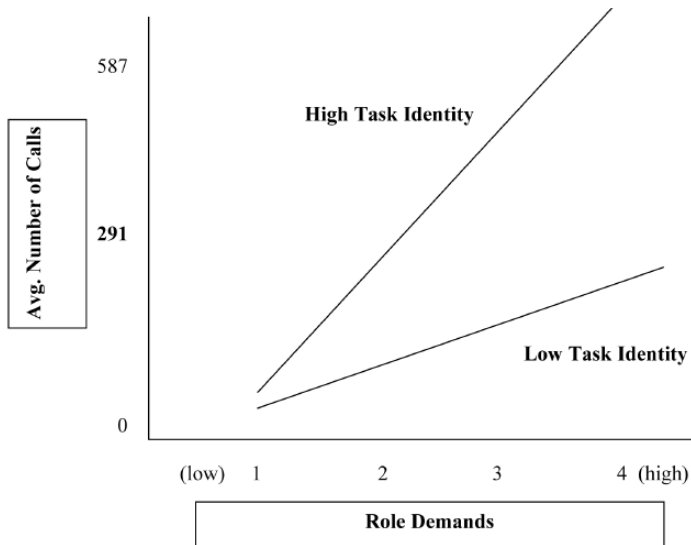


Figure 2: Moderating Effect of Task Identity on the Role Demands-Number of Calls Relationship



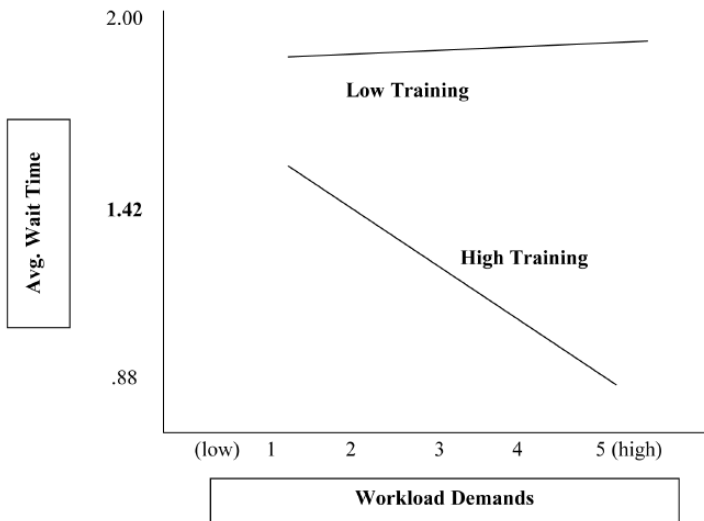
Work Pace Demands

Table 4 indicates two significant interactions with work pace for two of the performance measures. Feedback moderates the work pace-wait time relationship ($\beta = -2.64$, $p < .05$) while control interacts with work pace to predict call duration ($\beta = -.78$, $p < .05$). Both of these job resources act to reduce the call duration as the pace picks up.

In Figure 4, we plot the control-work pace interaction for call duration. Note that at low levels of control employees actually increase slightly the time spent on calls, even when the pace increases. But, at high levels of control, the duration sharply decreases as the pace gets faster. Employees who perceive they have control over their work day likely choose to spend time only on customers that they can readily help, perhaps referring customers who have longer, more time-consuming questions or problems to a technical person or a supervisor.

In sum, our results partially support all three hypotheses for objective measures of performance. However, not all performance indicators are created equal. Clearly, the performance of call center employees is affected by the role, workload, and pacing demands of their jobs. Just as clear, however, is the ability of some job resources to help ameliorate the negative effects of those demands on performance. In the next section, we discuss the implications of these findings for future research and for managing call centers.

Figure 3: Moderating Effect of Customer Service Training on the Workload Demands-Customer Waiting Time Relationship



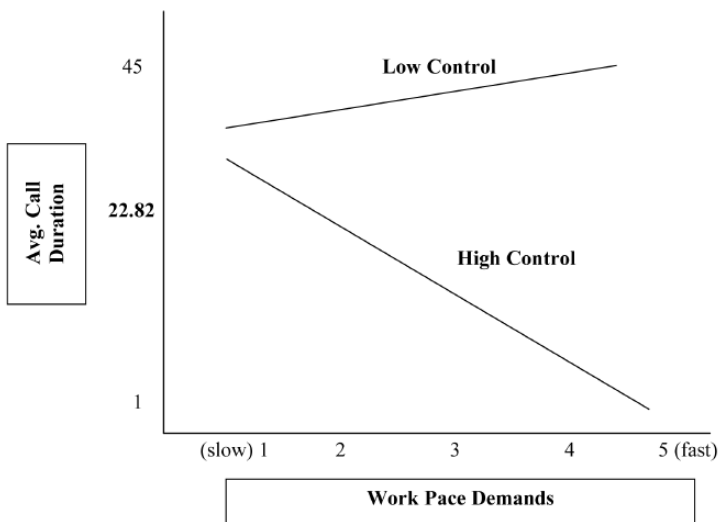
Discussion

Our study investigated the moderating effect of job resources (control, training, supervisor support, and four job content characteristics) on the relationship between job demands and performance. Workload demands, work pace demands, and role demands were presumed to be undesirable to employees and, therefore, would result in overall lower job performance. Job resource variables (feedback, task identity, task significance, skill variety, control, training, and supervisor support) were presumed to be desirable for employees and, logically, should result in overall higher job performance.

In contrast with the findings of Spector, Dwyer & Jex (1988) and Glaser, Tatum, Nebaker, Sorenson, & Aiello (1999), our study found a relationship between job demands and performance that differed depending on the levels of perceived available resources at the individual employee level. The overall results here support the notion that although these demands negatively affect performance, the influence of greater job resources seems to result in differential effects on performance. One such anomaly found in our study was that call duration seemed to increase as the level of some job resources increased, even in the face of increased job demands.

In this, our findings support those of Tuten & Neidermeyer (2004), Slater (1999), and Weitzman (2000) in their view that call centers *hope* that call center employees will resolve complex and time-consuming customer issues, but *reward* them based on having a large number of calls and a shorter length of time on the phone. As a preliminary suggestion for call center managers, we would encourage the re-thinking of call center performance measures and the restructuring of the performance management approaches used with customer service and sales associates in call centers.

Figure 4: Moderating Effect of Control on the Work Pace-Call Duration Relationship



We did not find that the effects of the job resource variables were very similar across the three performance indicators. However, the notion that these can vary in their ability to predict health and performance indicators is consistent with studies by Kelloway & Barling (1991) and Xie & Johns (1995) who also found support for some of job content variables, but none for others. In our study, it makes some sense that training, task identity, task significance, feedback, and control tend to be the primary resources. Clearly, employees who see “wholeness” to their work (i.e., solving customer concerns, using their full abilities), have good job knowledge, feel as if the job is important, and feel control over their tasks are more likely to spend more time and energy with customers, be able to handle a high number of incoming calls, and adjust their performance in the face of increased workload, role conflicts, and pace. What is most interesting, we believe, is how they choose to do that.

Increased call duration allows trained employees to solve customer problems. Given that they receive direct feedback from the job itself, it makes sense that successful employees are reinforced for being customer-centered and, thus, must reduce the number of calls they can handle successfully in a given time period. However, in the face of a conflict over “quantity vs. quality,” it appears from our study that employees who see less control, are not as well-trained, and who don't see a lot of motivating potential in their call center jobs tend to follow the reward structure: that is, whatever the call center indicates is the primary reward, that is what they will do. Because the “number vs. duration” issue is problematic to discern what constitutes an acceptable balance, call center managers need to be explicit in their expectations for employees. On the other hand, those call center employees who are better trained and see their job as solving customers' problems and providing service, may choose to reduce the volume of calls they take and concentrate on the service aspect, despite the organization's emphasis on call volume.

It is interesting, too, that we found no significant role for supervisor support in moderating any demand-performance relationship. One explanation might be that it is the supervisors who are creating some of the job demands, and so they not perceived by employees to be particularly supportive overall.

Both customer service training and employee control seem crucial in providing coping mechanisms for demanding job tasks in call centers. Moreover, organizations that provide a combination of training and enhanced control would likely find even higher performance on some tasks. We echo the call by Xie & Johns (1995) for more research on the effects of enriched and challenging tasks on performance. We would encourage future research to investigate the myriad of ways that employees can have more job resources at hand to deal with the ever-increasing and ever-changing nature of their work demands. In our study, we looked at only three types of demands: role, workload, and work pace. We might also suggest that other demands (e.g., time demands and deadlines, emotional demands, cognitive demands, etc.) may require different types of resources (e.g., supervisor support, time, structure, etc.) to provide individual employees with what they need to insure high performance and their own well-being. In addition, there may still be some question on the effect of training and control on other job resources themselves. Because our sample size did not permit that we test a structural path model, it may be beneficial to see whether higher training

and greater control actually lead to perceptions of higher task identity, task significance, feedback, and skill variety, supervisor support, etc. If so, then some of the conflicting findings (e.g., Bakker, Demerouti, & Euwema, 2005) on the JD-R may be able to be resolved.

Our study, like most, had some limitations. The size of the sample was somewhat modest and consisted of 90 percent women. Research on gender and performance doesn't really even exist. Moreover, the research on gender and stress is also in its infancy and has primarily investigated the different types of experienced stress, as well as women's health responses compared to men's health responses, across job types or even across occupations (Frankenhaeuser, Lundberg & Chesney, 1991). These studies have generally yielded mixed findings. In a meta-analytic review of studies on gender differences in work stress, Martocchio & O'Leary (1989) found no significant difference in occupational stress between men and women. McDonald & Korabik (1991), however, found that women reported being subjected to different types of stress than did men. That is, female managers reported more stress from work-family interface and gender-based barriers than did male managers. Similarly, Nelson, Quick, Hitt & Moesel (1990) noted in their study that female HR professionals reported significantly more stress as a result of organizational politics than their male counterparts. In contrast, Tung's (1980) study of educational administrators suggests that women perceive significantly lower levels of occupational stress than men. Of course, these studies did not deal directly with performance outcomes, so it is difficult to predict whether the relationships posited in our study would be different if the vast majority of customer service employees were men or if we had done a similar study in another industry.

The strength of this study, however, lies in some of the methodological refinements we were able to make over previous studies, such as gathering objective performance data over two years and obtaining multiple objective indicators of performance. We believe that future studies should continue to include objective measures of performance, in addition to more subjective ratings, to investigate the potential effects of job demands, and to look more closely at the role of job resources in those relationships. In addition, research that employs longitudinal designs is needed to gain a better understanding of those specific job demands and job resources that may be predictive of actual job performance over time.

Given the increasing use of call centers in the U.S. and abroad (particularly India and Latin America), we suggest that future research also look at comparative studies of performance, job resources, and job demands that are similar to and different from those in the United States. At present, comparisons between the quality of customer service provided by domestic and international customer service representatives have been largely anecdotal. For example, performance comparisons on specific behaviors, such as service orientation (courtesy and professionalism toward customers), communication (clarity of speech and grammar), and call management (using time efficiently on the phone and the number of repeat calls, (calls in which the customer indicated that he/she was calling back about an issue that wasn't resolved on a previous call)), may prove to be different for each location. Moreover, job resources, such as training, control, and supervisor support, may interact differently with role and

workload demands for international call center representatives than they do for domestic call center representatives, particularly if the culture of the international country holds these jobs higher in social status than we do in the U.S.

Such questions should be the focus for future call center research, particularly given that call center offshore outsourcing is currently one of the largest trends in the U.S. call center industry, particularly in India (where 350,000 people are employed in the outsourcing industry each year, with 150,000 new jobs added every twelve months) and Central America (where the number of call-center workstations will hit 730,000 in 2008, up from 336,000 in 2004). Clearly, there are other potential health, compensation, performance, customer service, and management research questions that will need to be asked so that we better understand how to effectively lead and manage call center employees in the 21st century.

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Contributions to Firm Value by Stock-Based Compensation Plans

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The goal of this empirical research is to determine the extent to which stock option plans contribute to firm value by comparing the estimated value of each firm to its actual value. If stock based compensation packages create the expectation of higher future earnings and if these higher expected earnings are included in the current market value of a firm, then the firm's value should contain a component that is unrelated to current earnings and is related to "investments" in stock-based compensation. This would be reflected in a higher firm value than could be expected in the absence of stock-based compensation.

Almost 15 million U.S. workers receive stock options as part of their total compensation according to a study by the National Opinion Research Center of the University of Chicago (Labor Research Association, 2005). Stock options offer benefits to shareholders by linking employee wealth to shareholder returns (Jensen & Murphy, 1990). Granting stock options to employees as part of a compensation package means employees have the opportunity to purchase company stock at a preset (also known as exercise or strike) prices, so long as the employee remains with the company. The arguments in favor of granting stock options for compensation can be found in agency theory which explains that managers (agents) in the workplace are expected to act in the best interest of shareholders (principals), and that the actions of the agent can be better monitored through the use of incentives that link the goals of the agent to those of the principal (Lobingier, 2000). Before the award of stock options is made, according to this theory, management will have incentives to produce the performance-based results required to earn the stock option grant. Then, after the options are granted, management's stake in the firm will be larger. In both of these

examples, the options serve to align the incentives of management with the interests of shareholders (Griner, 1999).

When the market grew rapidly in the 1990s, companies willingly adopted employee stock option plans and implemented them generously (Brandes, Dharwadkar, Lemesis, & Heisler, 2003). In the meantime, the issue of granting stock options has taken on greater weight in light of recent financial scandals (Fich & Shivdasani, 2005). Additionally, this issue has received increased attention with the inception of accounting rules that require the granting companies to expense stock option grants made to employees. Beginning in 2006, all publicly traded companies must include the cost of employee stock options on consolidated earnings statements (Newman, 2006).

Background and Hypothesis

Empirical Evidence

Empirical evidence regarding the benefit of granting stock options is mixed. Jensen and Murphy (1990) found a weak relationship between change in shareholder wealth and change in CEO wealth. A human capital study by Watson Wyatt found that companies that differentiate employee bonuses based on performance and use stock-based compensation financially outperform those that do not (Emerman, 2005). Griner (1996) found a positive relationship between accounting-based performance and total compensation, but did not find any relationship between compensation and shareholder return. Griner (1999) also found that there is no association between grants of CEO stock options and changes in shareholder return. He states, "Granting stock options does not increase the probability that a firm will experience an increase in shareholder return between the year before the grant and the year after the grant. Firms that grant CEO stock options do not experience more favorable changes in shareholder return than firms that do not grant options" (Griner, 1999, p. 436).

Fich and Shivdasani (2005) measured the impact of stock option compensation on firm value for outside directors. They found that a firm's market-to-book ratio is positively related to the presence of a stock-option award plan for outside directors. The outside director option plan increases the market-to-book ratio, on average, by about 0.14. We suggest an alternative way to measure the benefit of granting stock options through the consideration of firm value using the Earnings Capitalization Model.

Calculating Firm Value Using the Earnings Capitalization Model

In order to determine the extent to which stock option plans contribute to firm value, an estimated value of each firm must be compared to its actual market value. The estimates of value are based upon accounting measures of both earnings and the extent of stock-based compensation. The value of a firm is generally considered to be the present value of future benefits that are expected to accrue to the owners of the firm. The Earnings Capitalization Model is used to calculate the value of a business enterprise as the current or present value of the stream of expected future earnings of the enterprise. In practice, the future benefits of ownership are measured by reference to current and recent accounting earnings. A three or five year average of recent

accounting earnings is often used to establish the earnings stream that will be capitalized to produce an estimated firm value. In essence, this approach to value assumes that a firm's base earnings will continue in perpetuity and approximates the firm's value by taking the present value of these earnings. The Earnings Capitalization model can be simply stated as:

$$V = E/C$$

Where:

V = estimated value of the firm
E = adjusted earnings of the firm
C = capitalization rate

This formula can be modified in order to include the portion of a firm's value that results from stock-based compensation. This modification results in the following:

$$V = E/C + O$$

Where:

V = estimated value of the firm
E = adjusted earnings of the firm
C = capitalization rate
O = option value (the value from stock-based compensation)

With this formula, it is possible to calculate the separate value (positive or negative) of a stock-based compensation plan using the accepted research methodology described in the subsequent section. Our test focuses on the existence of O, the option value, and the question of whether there is a component of firm value related to the stock-based compensation plan that exists independently of reported earnings.

Numerical Example with Hypothesis

Before proceeding to a formal description of the research methodology, a numerical example is presented that illustrates the conceptual basis for the test. Suppose a firm has experienced base earnings before compensation expense of \$1,200 and compensation expense of \$200, yielding net income of \$1,000. Assuming that a reasonable capitalization rate for earnings of firms in this industry is 10 percent, the earnings capitalization model would yield an estimate of firm value of \$10,000. If there are no other factors that impact firm value, and if we have obtained good measures for both earnings and the capitalization rate, we would expect the actual market value of the firm to be reasonably close to this \$10,000 estimate.

Now, suppose that instead of a pure cash salary, the company has a stock compensation plan that provides managers with a portion of their compensation in the form of stock options, while maintaining the same total compensation. Since compensation is unchanged, the reported earnings of the firm are unchanged, provided that accountants measure the cost of the compensation correctly. Consequently, the earnings capitalization method would result in the same estimate of firm value.

If, however, the stock compensation plan induces a higher level of motivation and goal congruence between managers and shareholders, then we would expect the actual market value of the firm to be enhanced by the expectation of improved management performance in the future and therefore it would be greater than the \$10,000 value indicated by the earnings capitalization model. In our example, an additional value of \$500 is assumed to be associated with the stock compensation plan. Since this value would not be captured by the earnings capitalization method, the existence of the plan would cause an estimation error of \$500.

Our test will attempt to determine whether stock-based compensation is consistently associated with estimation errors where the actual market value of the firm is above the estimate that is obtained using the earnings capitalization model. We will further examine whether these errors are related in magnitude to the extent of stock-based compensation. From this approach, we introduce our primary hypothesis:

Hypothesis 1: The firm's stock-based compensation expense will be positively related to firm value

Accounting Concerns

As mentioned previously, it is likely that accounting procedures in effect during our test period will result in errors in the measurement of compensation resulting from stock option plans. The numeric example is extended to consider the effect of these errors on our test.

We might assume that the accountants undervalue the compensation expense by \$125. This understatement results in an overstatement of earnings by the same amount and therefore will also result in an overestimate of the value of the firm under the earnings capitalization model. Here the overstatement of the value is by \$1,250. In this situation, the earnings capitalization model incorporates two errors: 1) it misses the value of the stock option plan and 2) it overestimates the firm's value due to the underestimate of compensation expense. These two effects are offsetting. When comparing the estimated value of the firm to its actual market value, the result will be an overestimate if the first effect is less than the second, and an understatement if the first effect is greater than the second. If there were no increase in firm value due to the stock plan, the expectation would clearly be that the estimated value under the earnings capitalization model would be greater than the actual market value of the firm.

On the other hand, we could assume that the accountants overvalue the compensation expense by \$125. This results in an understatement of earnings by the same amount and therefore will also result in an underestimate of the value of the firm under the earnings capitalization model. Here the understatement of the value is by \$1,250. In this situation, the earnings capitalization model also incorporates two errors: 1) it misses the value of the stock option plan and 2) it underestimates the firm's value due to the overestimate of compensation expense. These two effects reinforce each other. Our test will not distinguish between value created by a stock compensation plan and an estimation error resulting from an understatement of earnings due to an overstatement of the compensation expense associated with a stock compensation plan.

A review of the accounting treatment of stock-based compensation expense before 2006 indicates that there was a general tendency to understate the expense and therefore overstate both earnings and estimates of firm value that based were upon these earnings. This general tendency will bias the testing results against our hypothesis. Consequently, if a stock compensation plan creates no additional value for a firm, we would expect the overstated earnings associated with an understatement of stock compensation expense to result in the earnings capitalization model overstating the firm's value. In this case, the existence of a stock compensation plan would be associated with an apparent component of firm value that is negative (the bias against H_1).

On the other hand, if a stock compensation plan does create additional value for a firm, then the effect of the additional value would tend to offset the overstatement of the value based upon the understated earnings, and our model may not identify the positive impact of stock compensation on firm value. If the effect of an earnings overstatement is greater than the additional economic value created by a stock compensation plan, then we would observe an apparent negative effect of the plan on firm value. Only if the economic value of the stock compensation plan is greater than the earnings overstatement effect will we observe the association of a stock compensation plan with higher firm values.

Therefore, if we observe a positive relationship between stock compensation plans and firm value, we can safely assume that the apparent value created by the plan is both real and large enough to overcome any tendency to overstate earnings in the presence of stock-based compensation. If we observe a negative relationship between stock compensation plans and firm value, we will be unable to conclude that the plans create any value. We must recognize that we could observe this outcome due to stock compensation plans actually detracting from firm value or from the effect of accountants generally understating compensation expense in the presence of stock-based compensation plans.

Empirical Methods

Sample

A sample of 297 firms was chosen from the Research Insight (Compustat) database. Since the earnings capitalization model generally cannot be applied to firms having negative earnings, any firm having earnings less than or equal to zero during the period of study was deleted from the sample. Firms are identified as being in the same industry if the first two digits of their SIC codes are the same. Alford (1992) found that grouping firms in this fashion provided meaningful sets with regard to industry level capitalization rates. Any industry containing fewer than 20 firms was deleted from the study. These selection criteria yielded a sample of 297 firms contained in six industry groups. An overview of the final sample is given in Table 1.

Definition of Variables & Description of Statistical Procedures

Hypothesis H_1 was tested using a least squares regression that related both earnings and stock-based compensation to actual firm value. Evaluation of the sign, magnitude and significance of the resulting slope coefficients (B_1 and B_2) indicated whether

earnings, stock-based compensation or both contributed significantly to firm value. This technique is commonly used in valuation experiments in order to determine the nature of an accounting or economic item's contribution to a firm's market value. The regression for the earnings capitalization model was defined as follows:

$$V_j = B_0 + (B_1 * E_j) + (B_2 * S_j)$$

Where:

V_j is the actual market value of the j^{th} firm calculated as the product of the closing price and the number of shares used in the primary earnings per share calculation, and

E_j is the earnings of the j^{th} firm calculated as the product of the j^{th} firm's primary earnings per share exclusive of extraordinary items and discontinued operations and the number of shares used for its primary earnings per share.

S_j is the j^{th} firm's stock-based compensation expense.

Table 1: Overview of Industries Analyzed in the Study

Industry Number	Description of Industry	Number of Firms
2800	Chemicals & Allied Products	24
3500	Industrial & Computer Equipment	32
3600	Electric Motors, Switches, & Equipment	42
3800	Measurement Instruments & Watches	36
6000	Depository Institutions	119
6700	Holding & Other Investment Offices	44

Results and Discussion

Statistical Results and Discussion

Table 2 contains the results of the test of H_1 . The coefficient B_2 associated with S (the firm's stock-based compensation expense) is positive across each of the six two-digit SICs. The value of B_2 ranges from 3 to 181. The consistently positive value of B_2 indicates that firms with stock compensation plans have a positive component of firm value related to stock-based compensation that is unrelated to current earnings. The variability of the magnitude of the B_2 coefficients across industries indicates that the impact of stock-based compensation on firm value, while consistently positive, varies in strength across industries. Overall, the results in Table 2 support our hypothesis (H_1).

Discussion

Interpretation of the Coefficient B_2

The present value of future benefits associated with stock option plans consistently exceeds the cost of these plans in all industries examined in this study. In short, the implementation of stock-based compensation plans appears to add value to firms. The variability in the degree to which these plans impact firm value leaves an

interesting question for further study.

It is likely that the accounting cost of stock-based compensation plans does not fully capture the economic cost of these programs during the time period under review. Recent changes in the rules for accounting for these programs indicate the need for further study of this relationship in years subsequent to 2006. If accounting values consistently understate the annual economic costs of these programs, then the results are biased against the hypothesis (H_1). Correction of this bias would increase both the magnitude and the significance of the impact of stock-based compensation already observed in this study. This is a further indication of the need for longitudinal study of this impact as accounting rules are adjusted to more closely reflect true economic costs.

Table 2: Results of Regression Analysis

Industry	B_0	B_1	B_2	R^2
Chemicals & Allied Products	36.9	12.2	30.6	.61
t-stat	1.4	4.9	1.4	
Sig.	.17	.00	.17	
Industrial & Computer Equipment	1.5	9.1	180.7	.59
t-stat	.1	5.3	3.5	
Sig.	.93	.00	.00	
Electric Motors, Switches, & Equipment	40.1	6.6	2.5	.39
t-stat	2.2	2.7	4.1	
Sig.	.04	.01	.00	
Measurement Instruments & Watches	16.2	11.4	41.3	.66
t-stat	1.2	7.7	1.6	
Sig.	.24	.00	.12	
Depository Institutions	-1.0	13.1	14.8	.91
t-stat	-.2	29.7	1.5	
Sig.	.83	.00	.15	
Holding & Other Investment Offices	97.7	12.7	59.5	.72
t-stat	2.9	7.3	2.4	
Sig.	.01	.00	.02	

The results indicate that the amount of variance in firm value explained by both earnings and firm stock-based compensation expense ranges from 39 percent for Electric Motors, Switches, & Equipment firms to 91 percent for Depository Institutions. This indicates that there are other factors not included in the model that could help explain the variance in firm value beyond what was investigated in this study.

Limitations, Conclusion and Implications

Limitations

The data analyzed was from a single year. Similar results in a longitudinal study could extend and validate these initial findings. Consequently, we recommend analyzing data across several years in studies that attempt to extend these results. Also, since the R^2 value indicates that earnings and stock-based compensation explained only 39 percent of the variation in value for firms in the Electric Motors, Switches, & Equipment sector, we recognize that this indicates that there are other factors not included in the model that could help explain the variance in firm value beyond what we investigated. Adding other related variables to the model, including net assets, may yield greater explanatory power across industries. The positive association between firm value and the existence of stock-based compensation plans was consistent over all of the industries studied, though the magnitude of the positive effect varied among these industries. This variation seems to indicate that stock compensation plans tend to add more value in some industries than in others. There could be many reasons for this, including the existence of other industry specific factors that were not identified in this study. This does not reduce the weight of the main finding, but rather points to an additional area for extension of this work.

Conclusion

We hypothesized that stock-based compensation expenses would contribute positively to firm value and our research results support this hypothesis. In each industry, the positive value of B_2 indicates that firms with stock compensation plans have a positive component of firm value that is related to stock-based compensation and unrelated to current earnings.

Implications

Our results indicate that spending money on stock-based compensation is in the best interest of publicly traded companies. Firms might consider these findings, when examining this portion of their compensation packages, to indicate that spending in the area of stock-based compensation can be justified in terms of economic outcomes as well as employee motivation and preference.

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Top Managers' Generational Membership and Strategic Decision-Making

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Generational theory asserts that people sort themselves into different generations because of their differing reactions to major events in history. This paper argues that generational theory could aid strategic decision-making research and should find a use in such research. The paper also offers propositions on how the generational membership of firms' top managers influences strategic decision-making.

When faced with complex and ambiguous strategic decisions, managers make these decisions behaviorally rather than optimally (Cyert & March, 1963; March & Simon, 1958). Their choices will be influenced by cognitive limitations and biases that can vary from strategist to strategist, which often arise as a result of top managers' individual experiences and psychological characteristics (Finkelstein & Hambrick, 1996). The focus of this paper is on one such set of experiences: those that vary from individual to individual due to managers experiencing particular events during different phases of life. These experiences form a generational peer personality that will influence an individual's actions throughout the remainder of his or her life (Strauss & Howe, 1991). This paper argues that membership in a generation (sharing a location in a range of birth years) is an important element of top managers' orientation and therefore will substantially influence their firms' strategic decisions.

In their seminal paper, Hambrick and Mason (1984) initiated an "upper echelons perspective," proposing that the cognitions of top executives influence firms' strategic choices. Since this paper's publication two decades ago, top management teams and their influence on corporate behavior and performance have been the subject of many studies that define top management teams as the group of the three to ten executives

(including the Chief Executive Officer) at the top of the organization (Finkelstein & Hambrick, 1996). These studies consistently find that top management teams either reflect some important processes within the firm or influence important corporate behaviors and outcomes. Finkelstein and Hambrick (1996) further assert that a top manager's orientation falls into two major classes: (1) psychological properties, such as values, cognitive models and other elements of personality and (2) observable dimensions of experience, including age, functional background, company tenure and formal education. The current paper introduces the concept of top managers' generational membership, which could be considered both an observable dimension and a personality characteristic.

Literature Review

The Influence of Personality Characteristics on Strategic Decision-Making

Psychological properties such as personality traits have been previously shown to influence strategic decisions and firm performance. A trait or disposition is the tendency of an individual to behave in a consistent manner in many different situations (Brody & Erlichman, 1998), while personality is the constellation of stable but unique traits that characterizes a person independently of the situation (Weiten, 1998). Finkelstein and Hambrick (1996, p. 45) assert that psychological properties, for example, personality traits, "provide a basis on which the executive filters and interprets stimuli, and they dispose the executive toward certain choices." These personality traits should be especially influential on strategic decision-making. Mintzberg, Raisinghani and Theoret (1976, p. 250) describe strategic decision processes as characterized by "novelty, complexity, and open-endedness, by the fact that the organization usually begins with little understanding of the decision situation it faces or the route to its solution, and only a vague idea of what that solution might be and how it will be evaluated when it is developed." Such decisions give few signposts to behavior and the resulting ambiguity leads to a search for more environmental cues. As House, Shane and Herold (1996, p. 344) argue, "When the situation no longer provides the clarity of cues to guide behavior, information-seeking, or sense-making activities, will increase. Who will seek what, from whom, how they will process the information, and how they will react to the uncertainty will be subject to the operation of individual differences. Greater uncertainty and ambiguity in situations will increase attempts at sense making, which are influenced by individual differences."

Only a handful of published studies have examined managerial personality characteristics and their influence on strategic decision-making. For example, Miller, Kets de Vries, and Toulouse (1982) find that firms led by CEOs with internal loci of control undertook more product-market innovation and greater risks. In addition, Gupta and Govindarajan (1984) studied the effects of strategic business unit (SBU) general managers' willingness to take risks and tolerance for ambiguity. The authors discovered that these personality characteristics contribute to effectiveness in "build" SBUs but reduced it in "harvest" SBUs. Hayward and Hambrick (1997) find that CEO hubris is positively associated with overpaying for large acquisitions. Papenhausen

(2006) presents evidence that top managers' dispositional optimism has a positive influence on problem recognition and problem solving actions but negatively influences firm performance. Miller and Droge (1986) show that CEOs' need for achievement is related to organizational structure, especially in samples of small and young firms, while Wally and Baum (1994) determine that CEOs' tolerance for risk is positively associated with speedy organizational decisions. Malmendier and Tate (2005) find that the investment decisions of overconfident CEOs are more responsive to available cash flow. Finally, Simon and Houghton (2003) present evidence that overconfidence in executives predicts the extent to which product launches were pioneering (risky).

The Influence of Observable Dimensions on Strategic Decision-Making

At the same time, the observable dimensions of an individual's experiences, (age, functional background, company tenure, and formal education), also have important effects on managerial behavior and firm strategic decision-making (Finkelstein & Hambrick, 1996). A large number of studies focus on top management team demographics (Finkelstein & Hambrick, 1996; Norburn & Birley, 1988; Wiersema & Bantel, 1992). While these studies show that demographic variables influence strategic decision-making, Finkelstein and Hambrick (1996) argue that the actual operative mechanisms behind these observable dimensions and robust, interesting relationships remain a "black box." On the other hand, researchers often prefer demographic variables to psychological constructs because they are easier to obtain and measure (Pfeffer, 1983). In addition, top managers' experiences often strongly affect the strategic decisions they make. For example, Cyert and March (1963) and Dearborn and Simon (1958) identify managerial individual differences, such as functional background, as influencing firm decision-making and performance. These two studies illustrate Finkelstein and Hambrick's (1996) argument that demographic or background factors, reflective of an executive's experiences, will be associated with strategic choices; therefore, both classes of top managers' orientation should continue to be valuable to researchers.

The Influence of Generational Membership

The current paper concerns the effects of one specific observable characteristic: generational membership. The effects of top managers' generational membership have not been studied; however, a related construct, age, has received some attention from strategy scholars. To date, the primary finding in this line of research suggests that the higher the age of top managers, the greater the resistance to change or innovation. Bantel and Jackson (1989) found that age of top managers and firm innovation were negatively related. Similarly, Hitt and Tyler (1991) reported that top managers' age was positively related to conservatism in firm decisions. Wiersema and Bantel (1992) also showed that the average age of a top management team was negatively related to corporate strategic change. The current paper argues that age as a marker of generational membership is a distinct construct from age itself.

Psychology researchers are now beginning to examine an important aspect of generational personality: birth cohort personality. Prior research has established that

personality characteristics are determined by both genetics and environment. For example, several studies (c.f., Bouchard & Loehlin, 2001; Jang, Livesly, & Vernon, 1996; Loehlin & Nichols, 1976) demonstrate that approximately 50 percent of the variance in personality is determined by genetic factors, with approximately 50 percent due to non-genetic factors. The source of these non-genetic factors is unclear. Most studies on environmental effects have focused on the shared family environment, showing that this environment accounts for surprisingly little of the variance in personality (Twenge, 2000). Researchers have generally ignored the potential effects of environmental influences outside the family, including the larger socio-cultural environment on personality. Even though several studies indicate differences in personality across countries and regions, few researchers have explored how personality is affected by environmental changes over time (Twenge, 2000). As Twenge (2000, p.1008) notes, more work in this area might resolve a paradox in personality research: “Longitudinal studies have often found remarkable consistency in personality traits as people age, whereas cross-sectional studies purporting to measure age difference have often found large effects”. She finds in her study of trait anxiety that Americans have shifted toward higher levels of anxiety and neuroticism during the last four decades. Twenge (2000, p. 1007) concludes “birth cohort, as a proxy for broad social trends, may be an important influence on personality development, especially during childhood”.

Despite widespread use in the popular culture particularly by marketing and polling experts, the concept of generations has been largely ignored by academics. Further, as Strauss and Howe (1991) argue, those few academic authors who discussed generations, e.g. Comte (1838) and Mannheim (1928), have not addressed key explanatory questions: how generations arise, why they change personality at any particular cohort boundary, and why they have a particular length.

Very little extant research has been done on the generational effects on managers and organizations. The primary sources of generational theory, such as Strauss and Howe (1991), do not focus on management of organizations. In the only study published in an academic journal that directly tests Strauss and Howe's theory, Krein (2003) finds evidence for generational voting patterns in the 19th century British House of Commons. Interestingly, several books in the popular press describe differences between the generational styles of employees in the workplace and the appropriate managing techniques for each. Management academic literature, on the other hand, lacks studies explicitly testing generational theory. The few studies found in the literature have tested variants of generational theory with mixed results. Halliman (1998) found that organizations with Baby Boomer CEOs had no differences in performance from organizations with CEOs from other generations. Jurkiewicz (2000) and Jurkiewicz and Bradley (2002) found more similarity than differences in values between employees from different generations, but they did not test using Strauss and Howe's generational boundaries or their generational peer personality characteristics. Two studies that do incorporate some portions of Strauss and Howe's theories are Jeffries and Hunte's (2003) development of a model of motivation based, in part, on generational differences, and Egri and Ralston's (2004) finding of an age-related pattern to the value orientations of managers and professionals of U.S.

generations. They have also been able to extend this pattern to Chinese generations and their value orientations, which may mean that generational memberships cross geographical, cultural, and language borders. We can clearly see that research has only begun to explore generational effects.

The remainder of the paper consists of three sections. In the next section, the basic tenets of generational theory are described. Several propositions arising from an application of generational theory to strategic decision-making are then laid out. Finally, the paper concludes with a rationale for undertaking a research program into a generational theory of strategic decision-making.

Generational Theory

As Strauss and Howe (1991) note, at the beginning of recorded history the generation was the standard measure of cosmic time in nearly all Indo-European cultures. The meaning of generations historically is ambiguous and frequently incorporates the concept of family generation: i.e., the set of all children “brought into being” by a father or mother (Strauss & Howe, 1991). The definition of generation used in this paper, in contrast, refers to a more specific concept: the cohort generation, a cohort-group that shares an age location in history and therefore a common peer personality (Strauss & Howe, 1991). The cohort generation “has no direct connection with genealogy or lineage. It is defined, instead, as everyone who is ‘brought into being’ at the same historical moment” (Strauss & Howe, 1991, p.436). Throughout this paper the term generation is used to mean “a cohort-group whose length approximates the span of a phase of life and whose boundaries are fixed by peer personality” (Strauss & Howe, 1991, p.34). It should be noted that generation is used as a group construct and not an individual construct like age.

Strauss and Howe (1991) offer the first comprehensive theory to explain generations, relying on a cyclical theory of history and generations to develop their theory. The authors make two assumptions: generational cohorts’ social behavior is governed by a well-defined, relatively unchanging lifecycle; and the lifecycle includes four basic life phases, each based on a multiple of the span between birth and coming of age:

- Elders (age 66-87). Central role: stewardship (supervising, mentoring, channeling endowments, passing on values).
- Midlife Adults (age 44-65). Central role: leadership (parenting, teaching, directing institutions, using values).
- Rising Adults (age 22-43). Central role: activity (working, starting families and livelihoods, serving institutions, testing values).
- Youth (age 0-21). Central role: dependence (growing, learning, accepting protection and nurture, avoiding harm, acquiring values).

Next, the authors imagine a sudden shock or what they term a “social moment”—for example, a major war or revolution. Here they make a third assumption: Any social moment affects an individual’s personality differently according to his or her

current phase of life. An example of this might be a war where youths attempt to keep out of the way, while rising adults arm to meet the challenge, mid-lifers organize the troops, and elders establish the purpose of the war. As Strauss and Howe (1991, p. 441) explain, “The stress of responding to the social moment leaves a different emotional imprint and memory with each group according to the role it is called upon to play. These differences, furthermore, are reinforced by the social interaction with each group....[W]ith this social moment, four adjacent cohort-groups separately coalesce into generations, each with a distinct peer personality....[T]he length of these generations depends on the length of the phases of life, assumed here to be twenty-two years.”

Until now Strauss and Howe (1991) have explained how generations form but not their cyclical nature. To do that, they make two additional assumptions. The first alleges that “A social moment not only shapes personality according to current phase-of-life roles, but also forges an enduring bond of identity between each cohort-group and its role—an acquired style that redefines both how each group will later regard itself and how it will later be regarded by others.” The second notes “A central role acquired during a social moment can extend into the next life phase—but not into the life phase after that” (Strauss & Howe, 1991, p. 444).

To carry this a step farther, the generation in the rising adulthood phase during a social moment carries with it a dominant social role into midlife. However, once this dominant generation reaches adulthood, a new generation in rising adulthood triggers a new social moment and wrests dominance away from the earlier generation. To this end, history creates generations and generations create history, thus creating a two-stroke rhythm. Strauss and Howe (1991, p. 447) claim four generational archetypes repeat sequentially and here they make one final assumption: “During a new social moment, each generation will redefine the central role of the phase of life it is entering in a direction that reverses the perceived excesses of that role since the last social moment.”

The result is a recurring generational fixed order:

1. A dominant, inner-fixated IDEALIST GENERATION grows up as increasingly indulged youths after a secular crisis; comes of age inspiring a spiritual awakening; fragments into narcissistic rising adults; cultivates principle as moralistic mid-lifers; and emerges as visionary elders guiding the next secular crisis.
2. A recessive REACTIVE GENERATION grows up as under-protected, criticized youths during a spiritual awakening; matures into risk-taking, alienated rising adults; mellows into pragmatic midlife leaders during a secular crisis; and maintains respect (but less influence) as reclusive elders.
3. A dominant, outer-fixated CIVIC GENERATION grows up as increasingly protected youths after a spiritual awakening; comes of age overcoming a secular crisis; unites into a heroic and achieving cadre of rising adults; sustains that image while building institutions as powerful mid-lifers; and emerges as busy elders attacked by the next spiritual awakening.
4. A recessive ADAPTIVE GENERATION grows up as overprotected, suffocated youths during a secular crisis; matures into risk-averse, conformist rising adults; produces indecisive midlife arbitrator-leaders during a spiritual awakening; and

maintains influence (but less respect) as sensitive elders.

In today's generational constellation we find the following:

1. Baby Boomers (born 1943-1960) as IDEALISTS
2. Generation X (born 1961-1981) as REACTIVES
3. GIs (born 1901-1924) as CIVICS
4. Silent Generation (born 1925-1942) as ADAPTIVES

The theory does have limitations. First, the generational peer personality does not apply to each member of a generation. There exists what Strauss and Howe call "suppressed" members of each generation who do not share the primary peer personality of a generation. The authors surmise that their theory describes personality only to the extent that it applies to an entire generational cohort and not to any individual specifically. In addition, cusps appear around the borders of each generation often manifesting characteristics of both generations, making each fuzzy.

Theory And Propositions

Materialism vs. Idealism

Strauss and Howe (1991) identify the Boomer generation as relatively idealistic, and GI and Xer generations as more materialistic, reflecting the cyclical nature of the material/idealistic dimension identified as a key feature in their descriptions of generations. GIs view progress as the improvement of the material well being of society. Boomers, on the other hand, see inner beliefs and values as paramount. In society today, we see Boomers driving the emphasis on values and culture, as opposed to their GI parents, who elevated material projects and building institutions over inner-driven beliefs. We observe this in business as well, seeing Boomer managers emphasize values, corporate cultures, ethics, morals, principles and standards in their communications.

Other examples of Boomers' emphases are the increasing use of terms such as corporate ethics, strong corporate cultures, and the moral basis of corporations. The emphasis on these terms by Boomers does not equate to agreement on what these terms mean among this group (or imply that any one generation necessarily acts more ethically than another), but instead points to the importance of the topics themselves.

This idealistic emphasis shows most clearly in strategic decision-making as Boomers focus on vision statements, guiding principles and core values' statements, and radical changes in products and services. They also largely drove the radical revolution in information and communications technologies of the 1980s and 1990s. Xers also participated, but their involvement was more opportunistic and less determined by vision and idealism.

In contrast, GIs place more emphasis on building institutions and accomplishing great material projects. By designing and building the interstate highway system during the 1950s and 1960s or launching the War on Poverty during the 1960s, GIs transformed corporate aims towards civic progress. They take great pride in their ability to solve problems on a large scale through civic-oriented material progress. GIs were largely responsible for the deployment of the mass market economy of the 1950s and 1960s that provided middle class access to automobiles, household appliances, and comfortable housing. GIs were more likely to use long-term strategic planning as

a tool, as opposed to Boomers who focused on the principle of “creative destruction” and the accompanying radical shifts in technologies and processes. This leads to the first proposition:

Proposition 1: Boomer top managers are more idealistic and less materialistic than either GI or Xer top managers.

Process-orientation vs. Results-orientation

A second difference between generations is the contrasting emphases on process and results. The Silent generation is the most process-oriented, needing to ensure that order is kept through a fair, sensitive, but strict process. Xers, on the other hand, see outcomes as more important. At the same time, they value creative, sometimes unconventional, methods to secure those outcomes. Silents emphasize hierarchy, proper channels of reporting, standard operating procedures, and routines. These processes are often inclusive and fair, but they can also be rigidly enforced. Xers, in contrast, see the process as less important than desired outcomes. They focus more on goals and objectives and, when necessary, use non-standard methods to obtain these outcomes. Since Xers often see formal regulations as barriers to accomplishing tasks, they can be impatient with traditional roles for managers. For example, outcome-based philosophies such as Management by Objectives and The Balanced Scorecard Approach (Kaplan and Norton, 1996) may be more attractive to Xer managers, while Silent managers prefer to develop and use formal channels of decision-making. These arguments lead to the second proposition:

Proposition 2: Top managers from the Silent generation are the most process-oriented, while top managers from the Xer generation are the most outcome-oriented.

Risk/Entrepreneurialism vs. Risk Aversion

The Xer generation, especially during their young adult years, tend to exhibit greater risk-taking in organizations than does the Silent generation. In consequence, the Xer generation is apt to be more entrepreneurial, while Silents find it easier to adapt to traditional organizational roles. We can see that such differences are often a result of their situations when generations come of age. Silents conform to society's roles, believing that credentialing and professionalization are the paths to success. They put a great deal of emphasis on expertise and are more likely to become technocrats who tinker around the edges rather than radically transforming their roles and organizations. Xers came of age in a more fragmented society and have little trouble seeing opportunities in the innovative and novel. They adapt well to their role as survivors and will do what it takes to survive even if the assignment requires great risk. Many of today's high tech entrepreneurs, Michael Dell, for instance, exemplify the lottery-type mentality of Generation X. This leads to the third proposition:

Proposition 3: Top managers from the Xer generation will be more risk-taking than top managers from the Silent generation.

Rationality vs. Nonrationality

As strategic thinkers, GI top managers rely more on rationality than do Boomer top managers. GIs rationalize systems, procedures, structures and roles, while Boomers prefer to rely on intuition, feelings, and other inner beliefs. We might say that Boomers tend to tear down rational systems, bureaucracy, structures and institutions, while GIs build them up. The de-layering and restructuring of organization structures during the past two decades is a phenomenon that is often associated with Boomer leadership. This leads to the fourth and final proposition:

Proposition 4: GI top managers make decisions and build organizational systems more rationally than do Boomer top managers.

Discussion and Implications

The previous section proposed several relationships between top managers' generational membership and strategic decision-making. The propositions put forth by this paper do not exhaust the possibilities for generational membership's effect on strategic decision-making, however. These four propositions were selected as prototypical of each generational trait. Many more behaviors can be predicted from generational membership than have been identified in this paper. Nevertheless, these four propositions represent the influence of top managers' experiences and characteristics on strategic decision-making.

Generational membership is a distinct construct in the strategic decision-making literature. Generational theory asserts that characteristics of a specific generation are constant throughout that generation's life (although they do interact with phase of life) and yet different from other generations. This is contrasted with age, which is assumed to influence each generation in a similar manner. Even though generational characteristics affect managerial behaviors and decisions, generational theory will not replace or contradict other constructs but can contribute an additional perspective to strategic decision-making.

Further study might include setting up a research program to identify which behaviors are influenced by generational membership. Further research may also determine how much generational membership will relate to the degree of discretion or job demands of top managers (Hambrick, Finkelstein, & Mooney, 2005). The impact of top managers' generational membership on firm performance should also be studied, including examining the moderating effects of such factors as environmental dynamism (Henderson, Miller, & Hambrick, 2006).

Generational theory is also linked with another subject of research: long-term cycles in managerial logics. Abrahamson's (1997) finding that employee management rhetorics are associated with long wave economic cycles, and Wyld's (1996) argument that there is a generational cycle in management thought are two of the most relevant papers in this area. In general, however, management research has only indirectly applied the concept of long cycles (e.g., Schumpeter's (1939) notion of innovation cycles). The paucity of research in this area may be related to methodological concerns with the replication in long-term cycles. Nevertheless, identification of long-

term cycles and their influence on strategic decision-making is a potentially rich research area.

The primary implication for managers is an understanding of the influences of generational membership on a firm's strategic decision-making. In addition, history tells us that the next generation will differ from the previous generation in a way that is, in part, predictable. By examining the interest of the popular press in the behaviors of generations, we can easily conclude that managers would welcome academic research into generational theory.

Generational theory as an academic topic is still in its infancy, but given the large amount of evidence that personal characteristics are critical to firm behavior and success, researchers and managers may reap substantial benefits by introducing generational theory into the strategic management field.

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