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167 [From the Editor](#)
John Humphreys

Articles

168 [College Student Motivation: An Interdisciplinary Approach to an Integrated Learning Systems Model](#)
Sukumar C. Debnath

189 [Bridging Disciplines and Setting up Diverse Teams](#)
Patricia Ann Marcellino

211 [Engagement in Multiple Roles: An Investigation of the Student-Work Relationship](#)
Richard Buda and Janet A. Lenaghan

225 [Work-Family Conflict and Health: A Study of Workplace, Psychological, and Behavioral Correlates](#)
Susan R. Madsen, Cameron R. John, and Duane Miller

Case Study

248 [Digging a Hole at Diamond Realty](#)
Lisa Formato, Barry Armandi, and Herbert Sherman

From the Editor

Welcome to the Spring edition of the *Journal of Behavioral and Applied Management*. I would like to thank all of the participants who have made a contribution to this publication. The list is long and includes many authors and potential authors, reviewers, and past Editors of JBAM. As always, huge thanks go to my Associate Editor Len White for his technical expertise and efforts in putting together our final product. Len is constantly enhancing our systems and his work is greatly appreciated. If you have not become a part of JBAM in some capacity, we encourage you to do so.

We begin this issue with a conceptual article by Sukumar C. Debnath entitled, "College student motivation: An interdisciplinary approach to an integrated learning systems model." Using a learning systems perspective, the author has incorporated theories of motivation from education, management, and psychology to offer a detailed model of student academic motivation.

Continuing the focus on student behavior, Patricia Ann Marcellino offers "Bridging disciplines and setting up diverse teams." An exploratory qualitative study was conducted to determine if an educational inventory based on learning pattern theory might be applicable to team units. Results indicated the inventory had value in constructing diverse teams in varied settings.

Our third article, by Richard Buda and Janet A. Lenaghan, is "Engagement in multiple roles: An investigation of the student-work relationship." This empirical study investigated the impact of the added role of paid worker to students' well-being, role balance, role quality, and role conflict. Results provided support for the depletion argument of multiple role conflict.

Susan R. Madsen, Cameron R. John, and Duane Miller also pursue role tension with "Work-family conflict and health: A study of workplace, psychological, and behavioral correlates." Quantitative methods were used to illuminate the relationships among work-family conflict, health, and various other workplace constructs (i.e., organizational commitment, leader/follower relations, job acumen and demands, social relations, and change readiness).

Finally, we offer the readers of JBAM a teaching case titled "Digging a hole at Diamond Realty." Lisa Formato, Barry Armandi, and Herbert Sherman present a scenario dealing with employee theft, whistle blowing, and conspiracy, and a myriad of other underlying issues. The case study would be suitable for those teaching business ethics, human resource management, business law, and potentially organizational behavior.

As always, we hope you enjoy this issue of the *Journal of Behavioral and Applied Management*. If you would like to become more involved with JBAM, please let me hear from you.

John Humphreys, Editor

College Student Motivation: An Interdisciplinary Approach to an Integrated Learning Systems Model

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ABSTRACT

Based on an interdisciplinary approach and a learning systems perspective couched in a broad motivational framework, an integrated model of student academic achievement motivation is presented. The model shows the classroom environment is influenced by macro-environmental factors, and is specifically determined by the teacher and five structural factors which, in turn, influences students' achievement goal(s) choice, volition, and intrinsic outcomes. Students' volition—moderated by their individual characteristics, expectancies, and outcomes' valence—leads to outcomes through goal achievements, with outcomes consequently influencing students' attributional patterns. Discussions indicate utility of the model in understanding, analyzing, managing, and enhancing student motivation in classrooms.

Introduction

Student motivation in college classrooms is a common and persistent problem (Pintrich, 1994) and poses a dynamic challenge for educators. While the motivational levels of students are a concern among the teachers, researchers, and educational administrators, creating an appropriate classroom environment that motivates students in higher education to learn (Hancock, 2002) and enhancing their academic performance (Hidi & Harackiewicz, 2000) both remain as the most important but unresolved goals for them. Numerous studies (e.g., Ames & Archer, 1988; Elliot & Church, 1997; Harackiewicz, Barron, & Elliot, 1998) have investigated these motivational issues; however, field studies in academic achievement-related behavior have generally lacked the guidance of a broad and integrative theoretical orientation and involved a piecemeal approach (Archer & Schevak, 1998; Eccles, 1983). Researchers (e.g., Eccles, 1983; Mitchell, 1997) have called for the development of a truly integrative framework of motivation by incorporating study findings related to various motivational theories (e.g., goal theory, self-efficacy, outcomes, individual differences, and job design), because (a) in achievement settings, a combination of these related variables would predict human behavior and its affective states better (Schunk, 1989), and (b) such a framework is a better representation of reality than are its more circumscribed component theories (Ford, 1992).

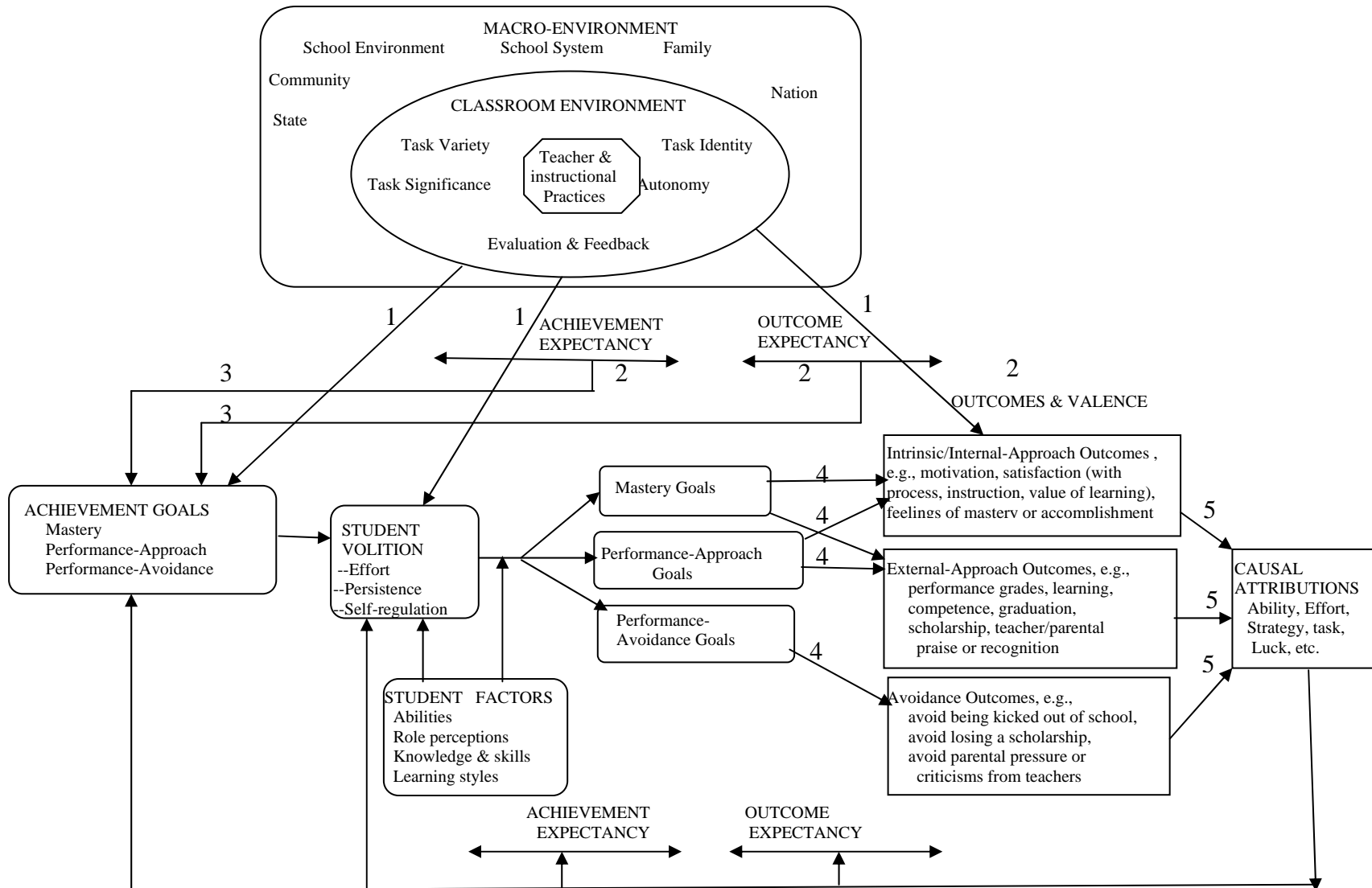
Next, many years of psychological and educational research provide complementary perspectives because the educational literature guides us in identifying the actual classroom practices by teachers (e.g., guidance, provision of choice, reinforcement, confidence building) that influence students' attitudes and beliefs, and the psychological literature (e.g., attributions, self-efficacy, perceived ability, competence, intrinsic motivation, goal orientations) explains how these beliefs influence students' motivation

(Skinner and Belmont, 1993). Given this complementary perspective, I seek to explore the insights offered by the educational, psychological, and management (which has a wealth of literature on motivation) literature relevant to student motivation, and combine the insights to develop an integrative model of student motivation. The model thus generated may better address the concerns of the motivation theorists for an integrated framework. In developing the proposed model, a learning system perspective has been used, whereby the four system variables (process, content, teacher, and student) are couched within the complementary framework offered by major motivation theories representing the content, process, intrinsic, and extrinsic perspectives. The model captures the major structural determinants of classroom environment based on the student achievement motivation theories and the job characteristics model. In addition, it utilizes the principles of goal theory, expectancy theory, and attribution theory to show how these structural elements may influence student motivation, volition, and various other outcomes. Therefore, the purpose of this paper is to present a student academic motivation model by integrating relevant theories and research findings from multiple disciplines--education, management, and psychology.

An Integrated Model Of Student Academic Motivation

The motivation model presented in *Figure 1* starts with the *macro-environmental components*--to include various factors such as family, school system and environment, community, state, and the nation, which affect the *classroom environment*. The classroom environment is more specifically determined by the *teacher* and the *structural factors* found in a classroom (task variety, task identity, task significance, autonomy, and evaluation and feedback), and is shown to directly influence three other components: (a) the *choice of students' achievement goal(s)* from among mastery (learning or task), performance-approach (attain favorable judgment of competence or ability), and performance-avoidance (avoid unfavorable judgment of competence) goals; (b) *students' executive motivation or volition* (effort, persistence, and self-regulation) related to achievement goals; and (c) *intrinsic outcomes*, because an appropriate classroom structure may generate motivation to learn and contribute to their anticipated satisfaction or feelings of mastery. While influenced by the classroom environment, the general sequence in the proposed model indicates that students initially choose to pursue certain goals, which then affect their volition (the heart of the model); however, the volitional requirements associated with the goals may have reciprocal influence on their goal choice as well. Next, students' volitional behavior (e.g., application of effort, persistence) is shown to lead to goal(s) achievement and from goal(s) achievement to certain contingent outcomes (e.g., feelings of mastery, satisfaction). Again, according to the proposed model, students' volitional behavior is moderated by their achievement expectancy (perception that volition will lead to goal achievement) and outcome

Figure 1: An Integrated Model of College Student Motivation



expectancy (perception that goal achievement will lead to certain outcomes), weighted by the outcomes' valence (value or attractiveness). In addition to their expectancies and valence, individual student factors--abilities, role perception, learning styles, and knowledge and skills--are shown to moderate students' volitional behavior and achievement expectancy. Once the volitional behavior results in outcomes through goal achievement, students may perform a causal search for the outcomes received and *attribute the causes* for the outcomes to such factors as ability, effort, task difficulty, or luck. The nature of the attribution, in turn, may influence their goal choice, volition, future expectancies, and other behavior. Even though additional interactions among the variables are likely because of the inherent complexity involving motivational issues, the present model primarily focuses on the aforementioned relationships.

I begin with an overview of the theoretical foundations based on which the proposed model has been developed. Following this overview, various components of the model are described, starting with the role of school and classroom environments as well as instructional practices in affecting students' behavior and motivation. Next, I explore how students' goal choice, individual factors (characteristics), expectancies, outcomes valence, and causal attributions for the past outcomes may influence their volition (executive motivation) as well as other motivational aspects. The paper concludes by discussing the utility and limitations of the proposed conception.

Theoretical Foundations

According to Smith and Delahaye (1987), any learning experience or system should include four major variables: *process* (the methods used to provide learning), *content* (the knowledge and/or skills to learn), *teacher*, and *student*. It is, therefore, necessary that student motivation models incorporate these four variables in their formulations. Also, motivation is influenced by the way a learning system is designed (Lengnick-Hall & Sanders, 1997; Smith and Delahaye, 1987); therefore, an effective learning system would require that these four variables are defined and designed appropriately, guided by the relevant literature, to facilitate learning and enhance student motivation. However, even a well-designed learning system can not operate in isolation from its environment, and is not likely to fully explain, on its own, students' behavioral choice and executive motivation in the learning context. Therefore, a learning system needs to be couched in a broad motivational framework that integrates multiple and relevant motivational theories in order to facilitate a better understanding of behavior, as suggested by many researchers.

Before elaborating on the proposed model and to shed light on it, a brief review of various student achievement motivation and general motivation models utilized in this paper is provided next.

A Review of Student Achievement Motivation Models

While it will be an enormous task to review the voluminous research literature on student motivation, I present a brief overview of several major models or theories of student achievement motivation meant to capture the development in this area.

Ames (1992), based on a comprehensive review of education literature and compelling empirical evidence, identified three major structures or elements of the classroom environment in her model--*task, authority, and evaluation and recognition*, and specified the characteristics and instructional strategies related to each element for enhancing student motivation. Ames' model illustrates that a properly structured classroom will (a) contribute toward a mastery goal orientation of students, (b) motivate them to apply effort or focus on effort-based learning strategies, and (c) foster their engagement and involvement in learning, when mediated by appropriate instructional strategies. Next, according to Eccles' (1983) expectancy-value model of achievement motivation, students' expectancies (belief regarding success) and task values (the importance of the task) are assumed to have direct effects on various achievement-related behaviors, such as their performance, persistence, and choice of achievement tasks.

Expectancies and task values are influenced by students' task-specific beliefs and their task goals which, in turn, are affected by other variables (e.g., causal attribution).

Pintrich's (1994) integrated model of student academic motivation for the college classroom shows three major components: (a) contextual factors or features of the classroom environment, (b) internal factors or students' motivational beliefs and emotions, and (c) students' motivated behaviors, such as choice behavior, level of activity, persistence behavior, and regulation of effort. According to the model, the classroom context directly influences students' internal beliefs and their motivated behavior, with internal beliefs directly affecting motivational behavior, all components having a reciprocal relationships.

Similar to Ames' (1992) model, Stipek's (1996) model of instructional designs and practices, meant to maximize student motivation, was derived based on a comprehensive review of education literature. It shows that appropriately designed instructional practices regarding (a) tasks, (b) criteria for success, evaluation, and reward, and (c) teacher behavior toward students would foster positive achievement-related beliefs which, in turn, are expected to lead to students' mastery goal orientation, intense engagement, effort, and persistence in intellectual activities. She also suggested that teachers must attend to the following four factors for increasing student motivation: extrinsic reinforcement, cognitions (e.g., self-efficacy, attribution, expectancy, perceptions of ability), task values, and goals.

Weiner's (1985) theory of achievement motivation and emotion shows that causal attributions for an outcome (positive or negative) may be made to factors under achievement domain (e.g., ability, effort, strategy, task, luck) and/or affiliation domain (e.g., physical characteristics, personality). The perceived causes of success or failure share three common dimensions of causality--locus, stability, and controllability. These

dimensions of causality are shown to influence expectancy and affect, which again guide individuals' motivated behavior (action) and its intensity, latency, and persistence.

In summary, these motivation models primarily suggest four major categories of variables and describe their relationships in influencing student motivation: (a) structural elements of classrooms, such as task characteristics (e.g., value, challenge, diversity), authority/autonomy, evaluation and feedback, reward (intrinsic or extrinsic), and goals; (b) instructional decisions and practices related to structural elements of classrooms; (c) students' cognitive aspects, such as expectancies related to success and outcomes, values, attribution, and perceptions of ability; and (d) students' motivated behavior, such as effort, engagement, persistence, and goal/task choice.

A Review of General Motivation Models

Behavioral scientists, drawing from multiple disciplines (e.g., psychology, management, sociology, anthropology, economics), have developed a large number of motivation theories over the last few decades. While it is a daunting task to examine these motivation theories individually, a parsimonious approach may be to classify them based on their underlying focus or principles, and review the representative theories from these categories. One approach would be to classify motivation theories based on their focus related to the sources of motivation: (a) intrinsic process motivation, derived from the behavior or work itself; (b) extrinsic motivation, induced by external forces or rewards, and (c) motivation from goal internalization (Leonard, Beauvais, and Scholl, 1999). However, goals can be subsumed under intrinsic or extrinsic sources of motivation. While the job characteristics model (Hackman and Oldham, 1976) and expectancy theory (Vroom, 1964) are primarily based on the intrinsic process motivation and extrinsic motivation, respectively (Leonard, et al., 1999), they can and usually do incorporate both intrinsic and extrinsic goals or outcomes.

Another generally accepted perspective is to classify motivation theories between the following two categories: (a) content theories--which involve the factors or needs that motivate human behavior, and (b) process theories--which describe the thought processes that influence behavior (Moorhead & Griffin, 2004). Job characteristics model and expectancy theory are considered to emphasize primarily the process perspective; however, they also incorporate the content perspective (in the form of task structure and/or outcomes) in their formulation. Moreover, expectancy theory, which has been utilized in many student motivation models (Pintrich, 1994), appears to be a representative theory of motivation because it substantially captures the common constructs (e.g., common process, common beliefs, and learning or acquisition of beliefs) underlying various motivational theories (Ilgen and Klein, 1988). Based on the discussion, job characteristics model and expectancy theory can be viewed as representing the essence of various categories of motivation theories; therefore, as a parsimonious alternative to reviewing the motivation theories individually, these two theories will be examined next along with their relevance to student motivation.

The Job Characteristics Model

The job characteristics model (JCM), developed by Hackman and Oldham (1976, 1980), is the dominant framework for defining task characteristics and understanding their relationship to employee motivation, performance, and satisfaction (Robbins, 1998). It has four major components. First, any job can be described effectively in terms of five core job dimensions or characteristics: *skill variety* (the breadth of skills and talent used to perform a variety of activities), *task identity* (the opportunity to complete an entire or identifiable piece of work that has a beginning and an end with tangible outcomes), *task significance* (perception of the value or importance of work to others), *autonomy* (the depth of work-related discretion and freedom allowed by the job), and *feedback* (the amount of direct and clear information about work performance). Second, the presence of these characteristics and their magnitudes trigger three critical psychological states (CPS) in a job holder--experienced meaningfulness of work, experienced responsibility, and knowledge of actual results. Third, greater amounts of these five core job dimensions are hypothesized to lead to stronger experiences of the three CPS which, in turn, lead to increased personal and work outcomes, such as internal work motivation, job satisfaction, performance, and reduced absenteeism and turnover. Fourth, these relationships are moderated by an individual's growth need strength (GNS). Many studies and their reviews generally provide support for the basic JCM, that is, the linkages among job characteristics, psychological states, and work outcomes (Glick, Jenkins, & Gupta, 1986; Hogan & Martell, 1987; Moorhead & Griffin, 2004).

Similar to the complementary relationship between instructional practices and psychological process in students, the JCM applies a complementary perspective between managerial practices (that determine task contents and characteristics) and the psychological process involving employee behavior and motivation. Also, the major structural elements of classroom environment (e.g., task, authority, evaluation) determined by the teacher (classroom manager) and identified in various achievement motivation models are similar to the core job characteristics of the JCM, and the behavioral and motivational outcomes described by these theories are also identical. While these similarities can be tapped for applying the JCM in academic settings, it can also further our understanding of student motivation by providing the missing link between the dominant classroom characteristics (structures) and students' goal choice, volition and outcomes. This is because the JCM traces the specific psychological impact generated by each of the structural elements. Therefore, as an empirically tested and proven theory in work settings, the JCM provides a relevant structure or framework that has the potential to impart a fresh perspective and add value in studying student motivation.

Expectancy Theory

Vroom's (1964) expectancy theory focuses on the psychological process to explain how individuals select behavioral actions to meet their needs or achieve desired outcomes. The theory has held a major position in the study of work motivation (Van Eerde & Thierry, 1996). According to this theory, the motivational force of an employee to exert

effort is a joint function of three components: (a) *Performance expectancy*--an employee's perception of the probability that effort will lead to the desired performance, (b) *Outcome expectancy*--the employee's perception of the probability that performance will lead to certain outcomes, and (c) *valence* of the outcomes--the value, attractiveness of, or preference for the outcomes. If any of these links are weak, the level of motivation to act will be reduced. Mitchell's (1997) review of studies indicated that expectancy theory prediction of job effort and occupational choice was significant and substantive in work setting. Similarly, the theory has been found to be useful in academic settings in predicting performance (Malloch & Michael, 1981), both effort and performance (Mitchell & Nebeker, 1973), and motivation to strive for academic success (Harrell, Caldwell and Doty, 1985), among other things. Expectancy theory, therefore, appears to provide a useful framework in the study of students' motivational force and choice motivation.

Given the fact that the JCM and expectancy theory together embody the essence or basic tenets of broader motivational theories and that these theories can provide a relevant framework and add value in the study student motivation, I use these theories to couch the learning system in developing the proposed motivation model.

The Integrated Model of College Student Motivation and Support from Research

Macro-Environment

The larger school environment serves as the stage for classroom design and student motivation. Teachers don't operate in isolation, rather they operate collectively within an interactive social system (Bandura, 1997), with the school environment being the most immediate one. For example, a growing body of evidence suggests that different schools may be characterized by different goal stresses (e.g., learning, performance and competition), which may in turn shape the schools' culture or psychological environment (Maehr & Midgley, 1991). Maehr and Midgley's (1991, 1996) research review revealed that institutional policies (in areas such as task, authority, recognition, evaluation, time), practices, and procedures influence, either directly or in a subtle way, the schoolwide psychological environment or define what the school is about, what the students are to do, and how the activities are to be done.

Just as the classroom environment is influenced by school environment, the school environment, student educability, and teachers' sense of efficacy are affected by the broader social, economic, and other conditions with which a school has to cope with (Bandura, 1997). Taken together, all these factors may eventually determine whether teachers can appropriately design the structure of a classroom, emphasize one goal over another, or motivate students in classrooms.

Classroom Environment

While the classroom environment is influenced by macro-environmental factors, it is specifically determined by the way various structural characteristics of the classroom are designed, the teachers, and the instructional practices.

The Structural Characteristics (Content and Process) of Classrooms

The classroom structures in the achievement motivation models (e.g., Ames, 1992; Eccles, 1983; Pintrich, 1994; Stipek, 1996) and core job characteristics in Hackman and Oldham's (1976) JCM are very similar; moreover, both achievement motivation theories and JCM stated that these characteristics, when properly designed, would lead to motivation of the individuals concerned. Capitalizing on this as well as research findings in the education literature, I propose that: (a) the classroom environment will consist of five major structural elements--task variety, task identity, task significance, autonomy, and evaluation and feedback; and (b) depending on the teacher behavior and instructional practices related to the structural elements, these elements will influence students' goal orientations, volition, and intrinsic motivation (linkages 1). Research findings are reviewed next to assess if these structural elements motivate students in classroom settings.

Task variety implies the requirement of skill variety within the scope of a classroom. The existing literature indicates that variety (e.g., games, contests, computers, case analysis, formal presentation, role play), diversity, and challenge (e.g., the level of difficulty, the forms of task accomplishment) are some task dimensions that affect students' perceptions of classroom goal (e.g., mastery goal) orientation and contribute to their motivation, learning, engagement, and satisfaction with the course (Ames, 1992; Blumenfeld, 1992; Lengnick-Hall & Sanders, 1997; Yair, 2000). Next, studies (e.g., Archer & Schevak, 1998; Lengnick-Hall & Sanders, 1997) involving college students reported that task identity in the form of major assignments, independent research projects, formal presentations, case analysis, or other major written analysis with a considerable portion of the course grade assigned to them contributed to a mastery orientation, higher level performance, involvement, increased motivation, and learning.

Task significance, in the context of a classroom, is similar to task value. It has been explained in terms of attainment value, intrinsic or interest value, and the importance (utility value) of the task for some future goals (Eccles, 1983). Most of the prominent theories of achievement motivation are based on the assumption that task value affect or mediate achievement behavior (Stipek, 1996), and study findings (e.g., Eccles, 1983) have supported this assumption. Students learn best when learning tasks are important for their immediate and long-term goals (Yair, 2000). Moreover, meaningfulness of tasks influence their perceptions regarding classroom goal orientations (Blumenfeld, 1992). Autonomy refers to the amount of freedom or discretion given to students to determine their own behavior related to learning (e.g., providing choice, freedom to decide the method and pace of learning or select tasks), and is fostered in the absence of external control and pressure (Skinner and Belmont, 1993). Researchers (Ames, 1992; Skinner and Belmont, 1993) reported a positive relationship between the autonomy provided to students and their intrinsic motivation and engagement in learning. A review of many other laboratory and field studies indicates a similar relationship between autonomy and intrinsic motivation (Deci & Ryan, 1996).

Regarding evaluation, the structure of evaluation can influence students' motivation and their orientation toward goals (Ames & Ames, 1984). Substantive evaluation that provides information regarding competence and guidance related to future efforts and is based on mastery can enhance intrinsic motivation in academic tasks (Stipek, 1996). Evaluation designed to emphasize social comparison (e.g., grade, ability) can negatively affect students' interest and perceptions of ability (Ames, 1992) as well as their preference for challenging tasks or goals (Elliott & Dweck, 1988). Next, clear and frequent feedback related to developing competencies is important for motivational purpose (Stipek, 1996). Both attributional and effort feedback related to prior success can affect students' motivation and efficacy for learning (Bandura, 1986; Schunk, 1989).

Taken together, the findings of Lengenick-Hall and Sanders' (1997) study, which incorporated these five characteristics in designing business school courses, indicated an increased level of student motivation, engagement, learning, and satisfaction with the course. Similarly, achievement motivation theories and research (e.g., Ames, 1992; Eccles, 1983; Stipek, 1996) reviewed earlier provide support that these structural elements can influence students' goal orientations, volition, involvement in learning, and motivation.

Teacher and Instructional Practices (Process)

In a college classroom, a teacher (as the manager) generally has the autonomy, flexibility, and the professional expertise to design a course, as well as make and implement decisions regarding the structural elements of the classroom environment and related instructional process. Stipek's (1996) review of numerous experimental and classroom based studies provided a compelling evidence that teachers' decisions and instructional practices regarding many classroom related variables, which are under their control, largely determine students' goal orientations and motivation. Yair (2000) indicated that depending on the structural characteristics of instruction, students may either be highly motivated and on top of learning, or they may be bored, alienated, and develop a sense of failure. Research also suggests that (a) teachers can facilitate students' goal adoption by making changes to classroom environment (Ames, 1992), and influence or manipulate goal orientations of students using instructions (Elliott & Dweck, 1988), and (b) students perceive teachers to encourage specific type(s) of goal adoption (Archer & Schevak, 1998). Moreover, various student achievement motivation models (e.g., Ames, 1992; Stipek, 1996) indicate that specific classroom designs and instructional strategies related to task aspects (e.g., task variety, task significance), student autonomy, criteria for success, evaluation and reward, and feedback can lead to student motivation, mastery goal orientation, high levels of engagement, increased effort, and persistence in intellectual activities. According to Pintrich (1994), instructional methods and their quality as well as instructional behavior and characteristics are important in promoting student motivation. Based on the discussion, it may be stated that teachers and instructional practices (process), as the components of a learning system, play a pivotal role in defining and designing the structural elements of a classroom environment (Figure 1), and consequently, affecting students' goal orientation, volition, and motivation.

Achievement Goals

Researchers (e.g., Ames, 1992; Ames & Archer, 1988; Hagen & Weinstein, 1995; Harackiewicz et al., 1998) identified two major types of student achievement goals: (a) *mastery goal*, in which students primarily focus on learning the course material (task mastery) and are oriented toward developing new skills and competence based on effort, and (b) *performance goal*, in which ability and outcomes (e.g., grades) of learning become the main focus, and students exhibit them by being successful, by outperforming others, or by surpassing normative based standards. Literature reviews (e.g., Elliot & Church, 1997) indicate that mastery goal is more positively related to intrinsic motivation than to graded performance (extrinsic), and performance goal is generally considered to have more extrinsic than intrinsic orientation. Many college students often pursue both mastery and performance goals (e.g., grades) simultaneously since these goals are important to them (Elliot & Church, 1997; Hagen & Weinstein, 1995; Pintrich, 1994; Pintrich & Garcia, 1991). If pursued simultaneously by students, these two goals may positively influence their motivation, use of self-regulation, and academic performance, and therefore, can be a key to their academic success (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Harackiewicz et al., 1998; Pintrich & Garcia, 1991). Subsequently, Elliot and his colleagues (e.g., Elliot & Church, 1997; Elliot & Harackiewicz, 1996) have further partitioned the traditional performance goal into: (a) *performance-approach goal*, where individuals are concerned with outperforming others or attaining favorable judgments of competence, and (b) *performance-avoidance goal*, which relate to individuals' avoiding failure or unfavorable judgments of competence. They consider both mastery and performance-approach goals as approach goals and the third goal as avoidance goal. Elliot & Harackiewicz (1996) demonstrated that performance-approach orientation lead to task involvement and intrinsic motivation, while performance-avoidance goal undermined intrinsic motivation.

Consistent with the existing literature, the proposed model incorporates three achievement goals for students--*mastery goal*, *performance-approach goal*, and *performance-avoidance goal*, and based on research support (e.g., Ames, 1992; Ames & Archer, 1988; Harackiewicz et al., 1998), it shows that these goals are influenced by the classroom structures. Since goals precede and are presumed to influence various academic achievement-related behaviors, such as choice of activities, intensity of the effort expended, and actual performance (Eccles, 1983), the model exhibits that volition (effort, persistence, and self-regulation) is preceded by these goals. Moreover, while goals may influence volition, the particular type of goal(s) students choose can influence the nature of their volition; for example, college students with mastery goals will devise strategies to help them master the material, choose challenging tasks, persist, and intensify effort if difficulty is experienced (Hagen and Weinstein, 1995).

Student Volition and Student Factors

Based on the literature, discussions in this segment focus on identifying major elements of student volition (which is at the heart of the model) and student factors (that

contribute to individual differences) as well as the nature of the relationships between these and other variables in the model.

Volition (Executive Motivation)

The concepts of motivation and volition or 'executive motivation' (Dornyei, 2000) are seen to form a continuum--the domain of motivation is involved with decision making and choice with respect to individual goals, whereas the domain of volition includes constructs related to goal implementation, which assist the execution of plans and intentions (Snow, Corno, & Jackson, 1996). Three major constructs of volition--effort, persistence, and self-regulation (Snow et al., 1996), subject of recent research and more directly related to this model, are incorporated in this model. While the role of effort and persistence in achievement context is obvious, self-regulation of students is no less important as far as implementation of a choice is concerned. Self-regulation involves self-generated thoughts, feelings, and actual behaviors oriented toward learning or attaining goals (Zimmerman, 2000). Deci and Ryan (1996) stated that an individual can be more or less self-regulated with respect to a particular behavior and different types of self-regulation are associated with different qualities of performance. In management education, students as co-producers of learning (because they play an important role in learning-transformation activities) are required to rehearse many of the self-management (self-regulation) skills which will make them effective employees (Lengnick-Hall & Sanders, 1997). Through the application of self-management and self-leadership skills, students invest their efforts more effectively and efficiently (Pierce, Reubenfeld, & Morgan, 1991). Moreover, as a part of the classroom environment, if the process (in the learning system) utilized by the teacher to provide learning is student-centered (as opposed to teacher-centered), students as co-producers would need to accept responsibility for their own learning and decision making (Smith & Delahaye, 1987). This process would, therefore, demand that students apply a higher degree of self-regulation or be more volitional otherwise to learn effectively. Pursuant to this and earlier discussions, the model shows that students' volition is influenced by the classroom structures (linkage 1).

Student Factors (Characteristics)

Campbell and Campbell (1988) identified six major antecedents of individual differences (interactions among them aside) which affect an individual's performance: abilities, knowledge and skills, task/goal understanding (role perception), the choice to perform, level of effort, and persistence of effort. Students may differ in terms of these characteristics and certain factors--particularly ability, role perception, knowledge and skills--can be significant moderators of volition (i.e., choice and level of effort, persistence), performance, and achievement expectancy (Campbell and Campbell, 1988; Eccles, 1983; Lawler, 1983; Mitchell, 1997; Robbins, 1998; Weiner, 1985). According to Lengnick-Hall and Sanders (1997), three factors--task clarity (role perception), ability, and motivation--are crucial to becoming an effective co-producer. Research suggests that when role perception is not clear, high ability and high skills

can't be utilized by students (Campbell & Campbell, 1988), and their ability to cope and willingness to apply effort may be negatively affected (Archer & Schevak, 1998).

Closely related to the ability issue are learning styles used by students in a learning situation (Kolb, 1984). Kolb pointed out that every individual's learning style and goals are different, and a learner generally tends to rely heavily on one of the following four dominant learning styles: (a) *convergent learning style*, which involves the learning abilities of abstract conceptualization and active experimentation, with its greatest strength being in the areas of problem solving and decision making, and the practical application of ideas; (b) *divergent learning style*, which emphasizes abilities in concrete experience and reflective observation, and shows the greatest strength in imaginative ability and awareness of meaning and values; (c) *assimilation learning style* which involves the learning abilities related to abstract conceptualization and reflective observation, and has the greatest strength in inductive reasoning, in the ability to create theoretical models, and in integrating disparate observations; and (d) *accommodative learning style*, which emphasizes concrete experience and active experimentation, and exhibits its greatest strength in doing things, in carrying out plans and tasks, and in getting involved in new experiences. Kolb suggested that these learning styles, given their characteristics, differ in terms of learning situations in which each can be effective. For example, the convergent learning style is characteristic of individuals in physical sciences, whereas the accommodative learning style is more characteristic of individuals in business or in action-oriented jobs. Kolb maintained that a learner's orientation toward a particular learning style can be a strength if it matches the learning situation. However, it can be a significant weakness if there is a mismatch between the learning style and the situation, in which case the learner will either change or leave the learning situation (since the mismatch may negatively affect learner's volitional behavior and achievement expectancy). Similarly, Stipek (1996) also indicated that students' self-perceptions as being academically competent (which can be based on the perceptions of ability, role, knowledge and skills, congruence between a learning style and a learning situation) may influence their effort and persistence (volition). Based on these findings, the model presented in this paper indicates that both volition and achievement expectancy of students are moderated by their abilities, role perceptions, knowledge and skills, and learning styles.

Expectancies and Valence as the Determinants of Students' Choice and Volition

Expectancy theory has been applied by researchers to successfully predict students' academic behaviors, such as effort, performance, and motivation (Harrell, Caldwell, & Doty, 1985; Mitchell & Nebeker, 1973). Based on Vroom's (1964) formulation, the proposed model (Figure 1) incorporates three expectancy components: *achievement expectancy* (volition-achievement goals expectancy), *outcome expectancy* (achievement goals-outcomes expectancy), and *outcomes valence* or values (linkages 2). Since students may simultaneously pursue multiple goals in the academic achievement settings (Elliott & Church, 1997; Pintrich & Garcia, 1991), I define expectancy relationships in terms of multiple achievement goals to include performance, learning, and other goals.

Students' motivation suggesting their willingness (choice) to commit effort is important but may not lead to task performance unless it is accompanied by their behavioral motivation (volition) indicated by the actual choice regarding their engagement, persistence, and intensity of effort related to an activity (Pintrich & Schrauben, 1992). Based on Vroom's (1964) expectancy theory, it is posited that students' behavioral or executive motivation will be moderated jointly by their achievement and outcome expectancies related to a situation and the outcomes valence (linkages 2). This is in line with educational research since various expectancy-value theories of academic achievement motivation (e.g., Eccles, 1983; Weiner, 1985) also propose that students' expectancies and values directly affect their action, intensity, persistence, performance, and choice of achievement task. Moreover, major cognitive motivational theorists have used, without exception, the expectancy of goal attainment as one of the determinants of action (Weiner, 1985). Studies indicate that (a) students' expectancies for success (goal achievement) relate strongly to their subsequent performance on tasks, and both expectancies and values are related to academic achievement (Eccles, 1983); and (b) students' perception of failure (low expectancy) on an activity they value lead to a reduced level of effort (Jagacinski and Nicholls, 1990). As with the expectancy of goal attainment (achievement expectancy), outcome expectancy also plays a role in affecting volition. Outcome expectancy is similarly defined in both educational and work settings, and research findings show that high achievers, in comparison to low achievers, tend to have higher outcome expectancy among other things (e.g., Bandura, 1986; Schunk, 1991). However, empty promises (related to outcomes) or inappropriate incentives could result in low outcome expectancy and generate indifference (Mitchell, 1997).

Next, as the evidence presented earlier indicates, valence (values) may affect student motivation and volition as well; more specifically, students' valence related to the anticipated (future) outcomes or past experience concerning outcomes both can influence their choice and executive motivation. Rewards are informative and can motivate and guide actions of students by communicating information about the actions that either lead to success or to failure (Bandura, 1986). Past outcomes, according to Weiner's (1985) attributional theory of motivation, influence both expectancy and affect (e.g., pride, self-esteem, anger) which, in turn, determine the action and its intensity (volition) related to a situation. In summary, students' achievement and outcome expectancies together with valence may affect their volition and motivation.

The model also shows that achievement and outcome expectancies influence the choice of achievement goals (linkages 3). This is appropriate because expectancies of goal achievement and outcome valence, among other things, were found to be important antecedents of goal choice or predictors of goal levels (Locke & Latham, 1990).

Outcomes

Outcomes can act as motivators, whether they are already realized (prior experience)--through causal attribution (Weiner, 1985) or anticipated in the future (Bandura, 1997). Parallel to the three achievement goals (mastery, performance-approach, performance-avoidance), three sets of outcomes are identified from the literature and incorporated in

the proposed model: (a) *intrinsic or internal-approach outcomes* are realized or anticipated psychological outcomes, such as motivation, satisfaction with process, feelings of mastery, a sense of accomplishment; (b) *external-approach outcomes* are more extrinsic in nature, such as performance grade, learning, graduation, college admission, scholarship, employment; and (c) *avoidance outcomes* involve negative consequences and punishments that students may want to avoid, such as being kicked out of school, losing a scholarship, criticism from teachers.

Based on the existing research ((Bouffard et al., 1995; Elliot & Harackiewicz, 1996; Harackiewicz et al., 1998; Pintrich & Garcia, 1991), it is posited that mastery and performance-approach goals each may lead to both internal and external approach outcomes, and performance-avoidance goal to avoidance outcomes (linkages 4). The literature (e.g., Lawler, 1983) indicates that a single set of behaviors (e.g., performance) may be driven simultaneously by and lead to both intrinsic and extrinsic outcomes. Next, as Figure 1 indicates, the model links classroom environment directly to the internal-approach outcomes because appropriate classroom structures may generate motivation to learn or perform and contribute to anticipated satisfaction or feelings of mastery. This conforms to the basic framework of the JCM and the research findings related to classroom structures discussed earlier.

Causal Attributions for Achievement Outcomes

Attribution involves retrospective judgments of the causes related to outcomes and such causal ascriptions have motivational consequences (Bandura, 1997). In the achievement domain, a causal search is undertaken by a student to determine the causes of success or failure (outcome), and causal attributions for the outcome(s) may be generally made to factors such as ability, effort, task, strategy, or luck, with each causality sharing three dimensions--locus, stability, and controllability (Weiner, 1985). Such attributions may affect perceptions related to ability (Eccles, 1983) and decisions regarding future effort, strategy, or task (goal) choice. Attributions influence expectancies of future successes and affect which again influence subsequent achievement activities and volition--action, its intensity, and persistence (Weiner, 1985). Schunk (1991) mentioned that students who attribute past successes primarily to stable factor (e.g., high ability or easy task) are expected to have higher expectancies for success than students who emphasize less stable factors (e.g., high effort or good luck). The influence of attribution on students' future expectancies, volition, and choice of achievement goals is shown in the proposed model using arrows (linkage 6).

Discussion

The problem of motivation within college classrooms is widely recognized by educators and researchers. Pursuant to the suggestions by many researchers (e.g., Eccles, 1983; Mitchell, 1997), I have presented an integrated model of student academic motivation in this paper aimed at enhancing our understanding of issues related to student motivation. The major contributions of the paper are as follows: (a) using an interdisciplinary approach, I offer an integrated and parsimonious model of student motivation based on the complementary aspects of and insights gained from the

theories and research from education, psychology, and management; (b) in developing the model, a learning system perspective has been used, whereby the four system variables (process, content, teacher, and student) are couched within the complementary framework offered by major motivation theories representing the content, process, intrinsic, and extrinsic perspectives; (c) grounded on the achievement motivation theories, job characteristics model, and educational research, the model captures the major structural elements of classroom environment which teachers should emphasize; and (d) utilizing the principles of goal theory, expectancy theory, and attribution theory, it also shows how these structural elements may influence student motivation, volition, and various other outcomes.

At the heart of the model lie student volition and the variables that affect it. Moreover, while many student motivation theories appropriately emphasize the role of mastery goals and intrinsic outcomes in motivating student behavior, the proposed model incorporates multiple categories of goals and outcomes and shows their relationships to student motivation. This is appropriate since college students may simultaneously pursue multiple goals for achieving multiple types of outcomes (e.g., Elliot & Church, 1997). Also, consistent with the content (needs) theories of motivation, the incorporation of various outcome types is simply a representation of reality. The model also explicitly shows that motivated behavior (volition) is not an end in itself because it is expected to lead to certain types of outcomes (e.g., internal-approach, external-approach), which then become the basis for causal attributions. In addition, the utilization of process-oriented theories in the model--which include preactional, actional, and postactional phases--is expected to be helpful in understanding student motivation (Dornyei, 2000).

The model in this paper has several practical implications for teachers, administrators, and researchers. First, the model can provide a basis for analyzing and diagnosing issues and problems related to student motivation. For example, college students who are not putting forth much effort or lack persistence could be probed in terms of the variables shown to influence volition. Based on the model, students' low level of effort could be traced back to one or more of the following: (a) the classroom environment, because structural elements (e.g., task variety, autonomy) are not properly designed; (b) an inappropriate goal emphasized by the classroom environment, such as students who prefer performance-avoidance goals are influenced to pursue mastery goals; (c) student factors (e.g., abilities deficiency, inadequate role perceptions, mismatch between the learning style and structural designs) which can not support volitional requirements for goals being pursued; (d) students' weak achievement and/or performance expectancies, or low valence for the outcomes; and (e) causal attribution for past failures made to abilities thus lowering expectancies. Once the problems are diagnosed, teachers can utilize the model in devising and implementing motivational strategies necessary to deal with the problems and consequently enhance motivation. These strategies can be broadly classified into, but not limited to, the following categories (Dornyei, 2000): (a) creating the basic motivational conditions (e.g., appropriate teacher behavior, good relationship with the students); (b) generating initial motivation (e.g., enhancing course values and relevancy, increasing achievement and outcome expectancies, increasing goal-orientedness); (c) maintaining and protecting

motivation (e.g., implementing properly designed classroom structures, promoting volition, clarifying role perceptions, providing necessary knowledge and skills); and (d) encouraging positive self-evaluation (e.g., promoting attributions to effort, providing motivational feedback). Because of individual difference factors, it would be necessary for the teachers to tailor motivational strategies specific to each individual student or a group of students with similar problems (e.g., a flexible design of classroom structures and instructional practices to match individual learning styles). Next, based on the diagnosis, administrators can also promote student motivation by emphasizing specific policies and practices (e.g., related to goal stresses or outcomes) or changing the environment (e.g., cultural or psychological), as necessary. Finally, with regard to future research, the proposed model has the potential to provide some guidance because of the model's broad and integrative nature and that the relevancy of the variables and their interrelationships are strongly founded in the theoretical analysis and/or empirical evidence provided by the literature.

The model has its shortcomings, because no single motivation model can entirely capture the variables, dynamics, and complexity of motivation. For example, it does not explicitly incorporate certain relevant variables, such as relatedness (to social partners), or association between thoughts and emotions, as found in some other motivational theories (e.g., Eccles, 1983; Weiner, 1985). However, some of these variables may be implied in the larger school environment of the model. Another example is that the model does not explicitly refer to the variables of personal standards (e.g., self-set task goals) and self-incentives, both considered to be important for incentive theories of motivation (Bandura, 1997).

According to researchers (e.g., Dornyei, 2000), the complex motivational life within classrooms can be best explained only by means of detailed and possibly eclectic constructs representing multiple perspectives. However, very little work has been done to integrate various motivational theories and principles (Mitchell, 1997) to provide such perspectives and facilitate a better understanding of motivational issues. Based on the literature from multiple disciplines, the proposed model of student motivation is an attempt to couch the learning systems concept within an integrated network, composed of several relevant motivation theories, and is designed to provide a parsimonious and useful framework to understand, analyze, manage, and enhance student motivation in college classrooms.

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Bridging Disciplines and Setting up Diverse Teams

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ABSTRACT

A qualitative action research study was conducted to explore whether an educational learning pattern inventory had application to teams in the MBA and educational leadership programs at a private university. Four courses were conducted by the same instructor. Fourteen teams were formed utilizing the inventory with 61 participants. Results illustrated that the inventory had value in both the business and education classroom in constructing diverse teams based on learning pattern theory. The inventory helped expedite the assignment of team roles and responsibilities and hastened team identity. Shared leadership emerged on the 14 teams in the study.

Introduction and Background

The literature on team and group-based cooperative models is voluminous with many descriptive narratives as well as empirical studies with primarily quantitative, and secondarily, qualitative methodological designs. Overall, empirical researchers have adopted a positivist/structuralist approach to team based and cooperative based research whether in the classroom or at the worksite. Most team research is quantitatively based and researchers intentionally limit variables. Researchers have measured multiple variables that affect achievement, performance, attitude or social interaction. But in spite of the abundance of empirical studies, there is no unified theoretical model of team development (Kline, 1999; Salas, Rozell, Mullen, & Driskell, 1999) because teams by their very nature are multi-dimensional and complex. Because of this, there is ambiguity concerning what constitutes team research (DeMeuse & Liebowitz, 1981; Kline, 1999). Moreover, because each researcher intentionally limits the number of variables in a study, some team studies seem to render an incomplete picture of teaming from the perspective of *all* participants.

According to Kline (1999), "there are so many theories about team performance, there are so many variables involved, and there are so many different ways to measure those variables that we are a long way from having a comprehensive theory of team performance" (p. 140). These complex variables may affect, influence or moderate the output of team units (Cohen & Bailey, 1997; DeMeuse & Liebowitz, 1981; Gully & Devine, 1995; Johnson, Srinivasian, & Kemelgor, 1998; Nowak, Miller, & Washburn, 1996; Kline, 1999; Salas, Rozell, Mullen, & Driskell, 1999; Springer, Stanne & Donovan, 1999). It is recommended that teams conform to external criteria and be limited in size, develop rules and have clearly defined goals and performance outcomes (Bolman & Deal, 1997; Katzenbach & Smith, 2003; McKendall, 2000; Polzer, 2003; Swezey & Salas, 1992). The role of the facilitator or instructor, communication feedback, time allotted, resources allocated, team and individual characteristics, skills and disposition of each team

member may affect team output both positively and negatively (Katzenbach & Smith, 2003; Kline, 1999).

Within the university classroom, teams are used to simulate the work experience and to develop team skills. In a management/leadership class, teams are usually task oriented and team members work toward achieving a desired output, performance, project or presentation, while they interact socially (Allie & Beam, 1998; Bolton, 1999; Bowen, 1998; McCahon & Lavelle, 1998; McKendall, 2000). Studies vary and measure a host of variables that affect team performance, such as team size (Bacon, Stewart, Stewart-Belle, 1998); the social network (Baldwin, Bedell, & Johnson, 1997); the effect of cohesion including gender and team size (Gully & Devine, 1995); as well as attitudes and time spent on team work (Freeman, 1996). Studies seem to range from a semester (Scudder & Herschel, 1994) to a year (Freeman, 1996). Overall, in a majority of the studies reviewed, results were shown to be significant in regard to team performance and interaction.

Furthermore, there seems to be a difference in the use of teams in business class settings compared to the use of teams in educational class settings. The business team development model emphasizes the task, job or performance primarily (Katzenbach & Smith, 2003; Kline, 1999), while the educational cooperative learning model seems to emphasize the development of values, such as cooperation, respect, tolerance and teamwork (Alavi, 1994; Antil, Jenkins, Wayne, & Vadaxy, 1998; Crooks & Klein, 1998; Hampton & Grudnitski, 1996; Johnson & Johnson, 1991, 1993, 1998, 1999; Johnson, Johnson, & Maruyama, 1983; Kromrey & Purdom, 1995; Ravenscroft & Buckless, 1995; Slavin, 1977, 1999). According to Kline (1999), team members seem to work better when they are cooperating with one another. Senge (1990; 1994; et. al., 1999; et.al, 2000) maintained that team members should engage in constructive dialogue and influence one another to achieve team learning.

A team does not evolve simply because an instructor places adults into a group and labels them a "team." A study by Bolton (1999) showed that when 72 percent of faculty at a state university assigned students to project teams in at least one class, 81 percent of the students felt that faculty gave them no support. Faculties at the college were satisfied (91%) with their team-building ventures, but students were less satisfied (64%). Often, instructors do not intentionally formulate their class teams based on research constructed instruments. Class teams seem to be formed in a haphazard fashion. Some faculties leave the choice of team members to the students and have them formulate their own teams. Further research utilizing learning oriented team-based models and instruments particularly at the higher education level seems necessary.

Because of the impact of change on society, Drucker (1999) advocated knowledge of various learning models and learning theories so that future managers and leaders could adapt and develop understanding of themselves as continuous learners in regard to their own career development. In this regard, a learning inventory based on learning pattern theory may be well suited to the business and education classroom when setting up teams. Johnston (1996, 1998) approaches the team-based model from the perspective that by formulating teams based on diverse learning pattern theory, teams will work better and

perform positively. Johnston's Interactive Learning Model (ILM) is a mind-brain connection-based model, which uses a process (the Let Me Learn Process®) to frame individual and group learning (Pearl, 2003). Johnston's ILM model is an original theoretical model that focuses on how the mind translates and formats information collected by the five senses.

Johnston posits that teams provide a multiplicity of intelligences and a diversity of learning patterns that become interconnected in the classroom whether students are elementary, secondary or adult learners. Johnston's theoretical framework rests on a foundation of constructs that can be traced to the interaction of the brain's operations and the mind's symbolic interpretation of those operations including: cognition (thinking), conation (processing) and affectation (feeling) capabilities. The interaction of these constructs manifests itself in four behavioral learning processes or patterns: Sequential, Precise, Technical and Confluent (Let Me Learn website: <http://www.letmelearn.org>).

Individual learners are represented by all four learning patterns and the interaction of each defines the learner and the approach to learning. The four learning patterns are defined as follows:

Sequential: the process of organizing, planning, seeking order and consistency;

Precise: the process of using information and words, detail-oriented, seeking confirmation of what is valid, right, and/or true;

Technical: the process of practical, active, autonomous problem-solving;

Confluent: the process of generating ideas, reading between the lines, and making connections, comfortable with taking risks, trying and failing and trying again, seeking to do it "my own way" (Silverberg, 2003).

Each learner utilizes the four patterns of sequential, precise, technical and confluent in different interacting combinations. A maximum learning pattern score for each learning pattern is 35. Learners fall into three learning pattern ranges: "use first" (scores 25-35), "use as needed" (scores 17-24) or "avoid" (scores 7-16). A person's score is self administered on the Learning Connections Inventory© (LCI) developed by Johnston and Dainton (1997a). The LCI is a 28-item self report instrument with Likert scale (1-5) questions and three open-ended questions. The inventory incorporates Johnston's ILM and theoretical frame by assessing the interaction of the four learning patterns. The LCI quantitatively and qualitatively captures the degree to which an individual uses each of the four learning patterns (Pearle & Head, 2002). See Table 1 for ILM Learning Pattern Characteristics in regard to cognition, conation and affectation.

**Table 1. The Interactive Learning Model (ILM)
ILM Learning Pattern Characteristics**

	Cognitively	Conatively	Affectively
Sequential	Organizes information	Makes lists.	Thrives on consistency and dependability.
	Mentally analyzes data.	Organizes.	Needs things to be tidy and organized.
	Breaks tasks into steps.	Plans first, then acts.	Feels frustrated when the game plan keeps changing.
			Feels frustrated when rushed.
Precise	Researches information.	Challenges statements and ideas.	Thrives on knowledge.
	Asks lots of questions.	Documents research and findings.	Feels good when correct.
	Wants to know more.	Writes things down.	Feels frustrated when incorrect information is accepted as valid.
		Writes long e-mail messages and leaves long voice mail messages.	Feels frustrated when people do not share information.
Technical	Seeks concrete real world relevance.	Hands on.	Enjoys knowing how things work.
	Only wants information as needed – nothing extraneous.	Tinkers.	Self-sufficiency feels good.
		Solves the problem.	Feels frustrated when a task has no real world relevancy.
			Enjoys knowing things, but doesn't need to share information.
Confluent	Reads between the lines.	Takes risks.	Enjoys energy.
	Thinks outside the box.	Not afraid to fail.	Feels comfortable with failure.
	Brainstorms.	Talks about things a lot.	Does not enjoy having ideas criticized.
	Makes obscure connections between things that are seemingly unrelated.	Might start things and not finish them.	Frustrated by people who are not open to new ideas.
		Starts a task before directions are given.	Enjoys a challenge.
			Feels frustrated by repeating a task over and over.

Model adapted from Let Me Learn Process® Christine A. Johnston
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 April 21-25, 2003. Copyright © 2001, Let Me Learn, Inc.

Nationally and internationally validated, the LCI has test-retest reliability (Learning Connections Resources Website: <http://www.LCRinfo.com>) as well as content, construct, and predictive validity (Johnston & Dainton, 1997b). After the LCI is administered, the instructor continues to monitor the interaction of the learning patterns as the class evolves. LCI inventory scores are shared among class and team members. Learning patterns are demonstrated through a series of tasks based on Johnston's ILM. If team problems develop, it is suggested that the instructor guide and coach team members to investigate the differences in their learning patterns as a possible source of team tensions. Rather than being considered a passive recipient of information, the learner takes control of making learning work and for co-constructing knowledge (Pearle & Head, 2002). The ILM assumes that if an individual knows his or her set of integrated learning patterns, he/she can use that knowledge to attend to the learning task. The learner takes responsibility for making the learning work. According to Pearle (2003), the conceptualization moves from the internal mental functions and operations of the individual to the external world of social operations within a teaching-learning context.

Problem

Adults have various assumptions that affect their behaviors and how they interact in team units. Because of this, adults may experience a tension when they serve on a team (Katzenbach & Smith, 2003; Kling, 2000; Lipnack & Stamps, 1997; Pacanowsky, 1995; Senge, 1990; Thompson, 2000), which may become problematic for team units. This dilemma seems inherently part of the team process and seems to influence any shift toward or away from team units (Thompson, 2000). How each adult individual reconciles this tension seems to determine whether the adult may learn from the team experience. The problem for an instructor working with teams in the classroom setting is how to construct class teams so that team tensions are eased and students identify with their teams.

Purpose

Four management/leadership courses were conducted by the same instructor to explore whether a research-based learning inventory developed by Johnston & Dainton (1997a; 1997b) could be utilized in formulating diverse teams in the business management and educational leadership classroom. Two courses were conducted in the MBA program and two were conducted in the educational leadership program. Fourteen teams were formed. The business classes were composed of 33 managers and aspiring leaders and the education classes were composed of 28 teachers and aspiring principals. The two business courses were conducted first, then the two education courses were conducted.

Research Design

Applying a qualitative design to this study seemed to provide a broader and deeper investigation of what was happening to all students as they interacted in their teams. Rushmer (1997) advocated qualitative measures in working with team-based units so as to provide a deeper analysis from multiple perspectives. Action research or putting theory into action in the classroom builds on the qualitative approach (Bogdan & Biklen, 1998; Mills, 2003). An instructor conducts it directly in the classroom in order to improve teaching and learning and to close the gap between theory and practice (Mills, 2003). According to Mills (2003), human beings “are very complicated organisms, and compared with chemicals – and mice, for that matter – their behavior can be disorderly and fairly unpredictable. This presents a challenge to educational researchers, who are concerned with gaining insight into human behavior in educational environments such as schools and classrooms (p. 3).”

Within the action research model, the instructor engages in a cycle of reflection, discussion, re-thinking, re-planning, understanding and learning (Mills, 2003). Mills advised conducting research in four broad stages: 1) focusing on a topic (in this study, the application of a learning inventory to develop team units), 2) collecting data, 3) analyzing the data, and 4) formulating a new “action plan.” In this regard, the new action plan is the redesign of a course syllabus. Words, rather than numbers, are the primary units of measurement in qualitative research, but within the action research model, quantitative instruments, such as surveys and inventories may also be utilized. Because the investigation of teams can be unwieldy, Miles & Huberman’s (1994) structured qualitative guidelines were applied to the data analysis. Mills (2003) and Miles & Huberman (1994) were complimentary.

Participants

The researcher investigated 14 teams comprised of 61 adults. There were seven business teams and seven education teams. In the MBA program, there were five teams of five members and two teams of four members. In the educational leadership classes, there was one team of five members, five teams of four members and one team of three members. There were 40 females and 21 males participating in the 14 teams. The females (16) and males (17) were evenly divided in the business classes across teams. In the education classes, there were more females (24) participating than males (4). Because of a larger representation of female students in the education courses, there were two all female teams in the education classes. See Table 2 for a Comparison of the Team Make-up in the Business and Education Classes.

Table 2: A Comparison of the Team Make-up in Business and Education Classes

	Business	Business	Education	Education	Totals
	Class 1	Class 2	Class 1	Class 2	4
Participants	19	14	17	11	61
Teams:	4	3	4	3	14
	3 teams of 5; 1 team of 4.	2 teams of 5; 1 team of 4.	3 teams of 4; 1 team of 5.	2 teams of 4; 1 team of 3.	
Females	9	7	15	9	40
Males	10	7	2	2	21

Polzer (2003) and Thompson (2000) advise setting up diverse teams to enhance creativity and problem-solving. Johnston posits that diverse teams should be composed of individuals representing each of the four "use first" learning patterns and that these learning patterns should be represented across teams. Aspects of Johnston's interactive learning process were demonstrated before students took the LCI. Students were invited to visit the website (Let Me Learn website: <http://www.letmelearn.org>). The class means and team means of each learning pattern were compiled as adults who represented each of the four learning patterns were placed and balanced across the 14 teams. If someone avoided a learning pattern, they were placed with individuals who led by that learning pattern so that each learning pattern was represented across teams. Class and team members' learning pattern scores were shared.

Strong willed learners (SWL) are learners who use three or more learning patterns at the "use first" level. Their scores are 25 and over in these patterns. Team members sometimes have problems relating to SWL because their learning patterns are not easily identified. They can easily switch their lead learning patterns demonstrating different patterns initially, which is sometimes confusing to team members. SWL may also be problematic on teams because they may try to control other team members or they may withdraw from the team process altogether becoming a "one person team" and preferring to work alone (Pearle, 2003). It should be noted that Johnston (2001) advises placing SWL on a separate team of four or more to minimize SWL domination of a team. The instructor, however, preferred not to create SWL teams because the goal in each course was to maintain team member interaction toward a common interconnected purpose rather than have SWL working separately under their team umbrella.

There were 19 SWL among the 61 participants. The business classes had six (out of 19) SWL in the first class and six (out of 14) in the second class. The first education class had five (out of 17) SWL, while the second education class had two. In all classes, SWL were distributed across teams, rather than confined to one team. In

addition, students may be characterized as bridge learners. Bridge learners are fairly balanced in their scores with ranges between 19 and 25 (use as needed) across all four patterns. On teams, bridge learners seem to provide dependability and consistency. When possible, bridge learners were placed on teams with SWL in order to provide steadiness to a team. See Table 3 for a Distribution of SWL and Bridge Learners on Teams.

Table 3: Distribution of SWL and Bridge Learners on Teams

	<u>Business Class 1</u>	<u>Business Class 2</u>	<u>Education Class 1</u>	<u>Education Class 2</u>	<u>Total</u>
Strong Willed Learners	6 out of 19	6 out of 14	5 out of 17	2 out of 11	19
Bridge Learners	1 SWL was placed on Business Team 1; 2 on Team 2; 2 on Team 3; 1 on Team 4. 1 Bridge Learner On Team 2.	2 SWL were placed on Business Team 5; 1 on Team 6; 3 on Team 7. No Bridge Learners	1 SWL was placed on Education Teams 1, 2 and 3; 2 SWL were placed on Team 4. 1 Bridge Learner on Team 4	1 SWL was placed on Education Team 6; 1 SWL was placed on Education Team 7. 2 Bridge Learners; 1 bridge learner was placed on Team 6 and 1 on Team 7.	4
Total: SWL and Bridge Learners	7	6	6	4	23

Methods and Data Collection

The instructor was the action researcher, but each graduate student was also an action researcher as each adult participated in the action research process (Mills, 2003). Each team was asked to complete a project task, which included one team policy paper and an extensive technological team presentation with peer evaluation (Topping, 1998). Students were also asked to investigate their team process from an individual perspective, while producing their team projects from a team perspective. Methods were triangulated to provide trustworthiness of the data in regard to credibility and dependability. These methods included updates from participants through e-mail and in-person (these were tracked and coded). Additional comparative methods included evaluative questionnaires at strategic points and students' individual summative team process reflective critiques. These methods became the data sources and enabled multiple team perspectives and team stories to be constructed.

Data was collected, chronicled and analyzed for themes, patterns, actions, events and surprises (Miles & Huberman, 1994). These various methods enabled the instructor and researcher to collect multiple perspectives from team members regarding the use of the LCI and learning pattern identification on each team. Students' words were compared, contrasted and analyzed. After the data was collected, a categorization process was established and a coding system was generated.

Categories and sub-categories were created based on the number of participants who mentioned a theme or pattern, the uniqueness of the information and whether the information was applicable to team units. The process of categorizing the data was repeated several times in order to refine the analysis. Overall, the dependability of the data was supported by the credibility of the "words" of the participants. While there were many questions asked, one overall question was: Can learning pattern theory be utilized by the instructor and adult students in constructing teams in business and education courses?

Results and Findings

The purpose of this action-research study was to conduct an investigation of 14 teams in four management/leadership courses as 61 adults engaged in experiential action research and applied an inventory instrument (LCI) and an educational model (ILM) to team units. In regard to the question: Can learning pattern theory be utilized by the instructor and adult students in constructing teams in business and education courses? Results illustrated that the learning inventory had value in both the business and education classroom when setting up teams. The LCI was a worthwhile tool to utilize in setting up diverse teams in the classroom setting regardless of the discipline. Students and instructor benefited. The inventory helped expedite the assignment of team roles and responsibilities and hastened team identity by enabling the students in the business classes and the instructor in the education classes to initially suggest team roles consistent with team members' leading or primary learning patterns.

Each team completed a project task, which included a team policy paper and an extensive technological team presentation with peer evaluation (Topping, 1998). Findings indicated that students gained experience in producing an external team product, and gained experience in the internal process of team development including interacting with diverse people who represented various learning patterns. Team members developed self-awareness of their own learning patterns and then an awareness of their team members' learning patterns. In both the business and education classes, students assumed roles within their teams that were consistent with their learning patterns. In the first business class, students assigned these roles, while in the second business class, the team roles that emerged or were assumed by the students were consistent with the leading learning patterns of the team members. One business team member stated:

-My team wanted to test the inventory and see if it was accurate so we assigned people to jobs according to their scores (Business/Team 1).

These team roles corresponded to students' learning patterns, for example, sequential learners became the team organizers, schedulers or recorders; precise learners became the team communicators, researchers, editors and writers; technical learners became the problem solvers, analyzers, and technicians; and confluent learners became the idea-generators, challengers, risk-takers and emcees. Because education students utilized the jigsaw model of cooperative education theory in their own classrooms and seemed to gravitate toward working on separate functions initially rather than coming together as a unified team, the instructor (following the lead of her business students) suggested the adoption of initial team roles in order to expedite a unified structural team formation. Because education students utilize various learning models within the education discipline, there seemed to be an initial hesitation in adopting the business team model recommended. Therefore, to prevent hesitation and confusion, the instructor suggested initial team roles to members on the education teams. As the team process continued to evolve on the education teams, education students continued to identify with these team roles seemingly to prefer them on their teams. An education team member stated:

-Before taking this course, I thought of the team process as cooperative groups or just simply a group of people (small or large) working under the same title. However, now I know that a team must have a common purpose and hold themselves mutually accountable (Education/Team 1).

Usage of the LCI with its reflective practice base seemed to increase the instructor's understanding of students in regard to their learning patterns. The application of the LCI enabled the instructor to build relationships with them by appealing to their learning patterns. The instructor implemented various tasks and demonstrations recommended by Johnston so that team members could develop a basic understanding of learning pattern theory. As each class iteration evolved, the instructor was able to further her craft as a practitioner and action researcher and gain experience as an external facilitator and coach to the teams. As an external facilitator and coach, the instructor

tried to ease individual/team tensions by helping students to focus on their learning pattern differences.

Tensions emerged on both the business and education teams. This was especially surprising in the education classes because students seemed to be acculturated toward a cooperative, collaborative and relationship-building model. When tensions emerged, the instructor coached students to reflect on their team assumptions and analyze their team tensions from a different perspective, one that was based on self-reflection and tolerance for learning pattern differences. The easing of team tensions encouraged students to continue to work within their teams and focused team members on team cohesion and unity.

The LCI helped expedite the assignment of initial team roles and responsibilities by enabling the students and the instructor to initially suggest team roles consistent with team members' leading learning patterns. By initially suggesting team roles, students began to share in the team leadership role and shared leadership continued to evolve on all 14 teams. Contrary to guidelines provided by Katzenbach and Smith (2003), the role of team leader was not assumed on any team. Instead, shared leadership and shared responsibilities evolved. This sharing of the leadership function was likely a by-product of assigning initial team roles from the onset. By suggesting team roles, team identification seemed to hasten as students began to assume the responsibilities of their roles in regard to team tasks. By sharing responsibilities and sharing leadership, team members were able to achieve the goals they laid out for their teams.

Discussion

Themes and patterns emerged that were consistent in the business and education classes. Class participants (n = 61) applied the LCI on a personal level primarily, and then participants attempted to utilize its precepts in developing an understanding of their team members. Team roles were consistent with the primary or leading learning patterns of individual students on the teams. Shared leadership emerged on all 14 teams. Initial team roles were assigned by the students themselves (business classes) or suggested by the instructor (education classes) according to the four learning pattern preferences indicated in the LCI. The ILM and LCI were intentionally applied by the instructor so as to give teams and team members a focus that was learning related.

Theme: Adapting Learning Pattern Theory and Learning Pattern Terminology

In both the business and education teams, students began to describe themselves in terms of learning pattern theory. Students also described team members and their interactions with them in regard to the LCI and learning pattern theory. Through the use of the LCI, students indicated that they came to understand their own learning patterns first and then tried to develop an understanding of their team members according to their learning patterns. Students began to approach their team members on the basis of their learning patterns. Comments from business and education team members were similar in their basic understanding of the learning patterns in regard to themselves and their team members. Their comments indicated that they related to one another on the

basis of their learning patterns and gained an understanding of one another that was learning related. For example, team members stated:

Business/Team 2: *[The LCI] made me understand myself better, which will ultimately help in the way I interact with people.*

Education/Team 3: *I came to an understanding of my learning pattern that will make me aware of how I work and learn.*

Business/Team 3: *Because of our learning patterns, we understood ourselves and then we understood each other.*

Education/Team 4: *I was able to understand the behavior of my team members at times because of their learning patterns.*

Business/Team 5: *I am a SWL, but may be too much so that I over extend myself constantly.*

Education/Team 7: *Since I am a bridge learner, I dabble consistently in all the learning patterns.*

Business and education students also noted how they interacted with and complemented one another based on their learning patterns. Students in both disciplines noted how the interactions of their learning patterns enhanced the work of the team. Comments from business and education team members included the following:

Business/Team 1: *I think my scores were accurate and they confirmed my team's scores.*

Business/Team 4: *My team mate and I had complimentary learning patterns. We worked closely together and enhanced one another's work. She is highly precise and I am highly confluent. I was only concerned about the big picture effects, but she was concerned about the details. With her, my work became better.*

Business/Team 5: *Our [learning pattern] skills complemented each other well and everyone brought something different to the team.*

Business/Team 6: *Two of my team members were precise. One member was so precise that in our presentation; she had the photos change according to the rhythm of the music. It was timed so precisely.*

Business/Team 7: *The LCI described me perfectly. I am sequential and precise. As teammates, we worked closely together; they were more technical and confluent. I can see where it would be beneficial for managers to know the learning patterns of employees so they can match employees up on projects.*

Education/ Team 1: *Because of one member's high confluence and skill in technology, we took our team in that direction. Another member was a SWL and needed to be involved in all aspects of the project [so] I made sure I updated her most often. Because of my precision, I took on the role of editor and communicator.*

Education/Team 2: *Those precise people can truly drive you crazy. Nothing can be out of place. On the other hand, the creative ones [on the team] allowed the group to interact and have fun.*

Education/Team 3: *One team member let her creativity take over and moved our team in that direction. Another provided the detail work and problem solved throughout. I was sequential and as a team, we worked very well together.*

Education/Team 5: *We were conscious of the fact that as a team our confluent patterns necessitated more sequential and precise strategies to bring us together and we did it.*

Education/Team 7: *We had the correct mix of learning patterns on our team. We interacted and balanced one another's traits. Every one of us strongly identified with this team.*

Theme: Shared Leadership Emerges On Business and Education Teams

Team members agreed that they did not have a designated leader, but instead on 14 teams adults shared leadership on their teams. The utilization of the LCI in suggesting initial team roles within their teams aided the team structural foundation. It seemed to expedite identification to the team as each person initially assumed team responsibilities by performing a role on the team. The sharing of team roles lessened the need for a team leader and may have been the reason why "one leader" was not needed. Students seemed to deliberately pull back on leading their teams and did not assume "the leader" role. This was true of SWL as well. As teams evolved, responsibilities and leadership continued to be shared. The concept of shared leadership is an emerging topic for academic research; in the past, leadership research has focused primarily on one individual as leader within a team and not on leadership as a shared process (Pearce & Conger, 2003). Students in business and education teams made the following comments:

Business/Team 1: *I was categorized as a SWL and I didn't want to take control of the group. I didn't want to be the leader because I had that label – SWL. I didn't like the label. My team members agreed that I did not lead or control the team. Instead, [except for one team member] we all shared the leadership role.*

Business/Team 3: *The strength of this team was the willingness of every team member to take on responsibilities. Everyone was quick to step forward to do whatever was necessary to reach our goal...there was a lack of egos.*

Business/Team 3: *We had no leader, everybody had an equal part. I've been on other teams and there's usually one person who wants to be the leader and control the team, but in our team, we all shared.*

Business/Team 4: *Our team never really chose a leader; we were instead trying to coexist equally. We all played a part in leading this team.*

Business/Team 5: *I don't think one leader was necessary. We each carried the team . . . and let others take over when we didn't have knowledge of that area. Normally I will become the organizer and meeting task coordinator. However, when I do this, I end up doing a large percentage of work. Others know I won't let the task not get completed, so they let me do it. With this group, I did what was expected of me and watched to make sure that one person wasn't carrying the bulk of the work.*

Business/Team 6: *We didn't have one leader. We were all leaders sharing in decisions and contributing our talents and skills on different aspects of this project.*

Business/Team 7: *We really came together as a team. In the final analysis, we all shared leadership.*

Similar statements comparable to business team members were also attributable to education team members as they analyzed the team process on their teams.

Education/Team 1: *Everyone on our team played a role and no role was more important than any other. We were all leaders within this team.*

Education/Team 2: *Leadership was shared on the basis of the collective skills within the group.*

Education/Team 3: *I deliberately held back and let my team mates take over. They took this team in a direction that I would never have taken it if I were acting alone or if I was the leader. We shared in the leadership role.*

Education/Team 4: *Not one of us was the leader, but we led each other.*

Education/Team 5: *We merged our talents and skills and shared leadership on our team.*

Education/Team 6: *There were times when we each acted as leaders. We all became leaders at different times using our strengths. We did not have one leader.*

Education/Team 7: *I haven't really been on a team that was assembled by someone else, without my input. We shared the leadership role, brought varied experiences to the table and managed to assemble a great piece of work.*

Team Surprises and Contrasts

Because methods were triangulated and included updates from participants through e-mail and in-person, which were tracked and coded, the instructor and action researcher was able to track the tensions on the teams. These tensions led to team member withdrawal on four teams. Team member withdrawal was experienced by two of the teams in business (Teams 1 and 2) and two of the teams in education (Teams 3 and 4). This was a surprising revelation. In these cases, the "team" members were not able to develop an awareness of their team members' learning patterns because their interaction with team members was limited. All students were in management/leadership courses attempting to advance their careers into leadership positions in corporations or schools. Their withdrawal from the team process was a surprise to their team members and this seemed to affect the satisfaction of the remaining team members on these teams. Team products were not affected as the other students on the team worked around and made up for individual team member withdrawal. Remaining team members shared leadership roles in spite of the withdrawal of a team member.

Although these individuals withdrew at times from their team units, they developed self-awareness of their own learning patterns. The students on the business teams attributed their withdrawal to a difference in learning patterns (Team 1) and a conflict with a SWL (Team 2).

Business/Team 1: *Annoyance is what I felt . . . I am a technical learner and people on this team were too sequential for me.*

Business/Team 2: *My work made the team project better, but [one team member], a SWL, was overpowering and wanted things her way.*

Two students on education teams (Teams 3 and 4) withdrew because of a lack of role identification on their teams. Because of a duplication of learning patterns, team roles on these teams were shared with other team members and were not clearly defined. In spite of the presence of bridge learners on Business/Team 2 and Education/Team 4, tensions on teams were not eased. Learning pattern terminology was utilized by education team members to describe their difficulties with team members.

Education/Team 3: *My team member, a SWL, and I shared team roles. Because of this, I was confused about my role on this team.*

Education/Team 4: *There were five members on this team. Even though I was a SWL, I was unable to impact the team's performance. I had no major role on this team so I withdrew.*

Conclusions and Implications

This study applied an educational model (ILM) and learning instrument (LCI) to 14 teams in four management/leadership courses. Two courses were in the MBA program and two courses were in an educational leadership program. Based on results and findings, the LCI had value in business and education in formulating teams and hastening the team structural foundation by assigning team roles and responsibilities consistent with students' leading learning patterns. Use of the LCI helped identify team roles. Students were able to identify with their teams based on this early role formulation. The formulation of teams based on learning pattern theory gave teams an initial central focus that strengthened and expedited the team structural foundation.

The modal team size is usually five members (Thompson, 2000). Based on this study, however, it is recommended that teams have no more than four members when assigning roles based on the LCI and learning pattern preferences. Everyone on a team should have a clear and distinguishable role on the team. When utilizing the LCI to formulate teams, having four member teams may lessen the role confusion that members on the education teams experienced. It is also suggested that SWL be placed across teams and given an initial or suggested role consistent with their highest primary pattern; this may lessen SWL control or withdrawal of team members from the team. Even though Johnston (2001) advises placing SWL on separate teams of four or more to minimize domination of a team, in this study, most SWL did not attempt to control their teams.

By following the action-research cycle presented by Mills (2003), the instructor was able to redesign her syllabus or "action plan" in regard to her understanding of the LCI and learning pattern theory as it applied to diverse team units. Some of her proposed changes to her syllabus were to: 1) formulate teams composed of four learners so that team roles could be consistent with learning patterns, 2) distribute SWL and suggest a role for each of them so that they do not attempt to "control" their teams or alienate themselves from their teams, 3) distribute bridge learners (if possible) on teams with SWL to offset their dominance, 4) suggest that each team rotate an internal team facilitator within each team. While the instructor remains an external facilitator to each team, the instructor is not a member of each team, therefore, an internal facilitator would support the team and also try to reduce team tensions if they arise, and 5) the instructor should continue to ask for updates from all team members so as to monitor team tensions externally and continue to coach students through these tensions by referring to their learning pattern differences. By coaching students, tolerance of learning pattern differences might be learned.

The LCI engaged adult learners in developing self-awareness and a beginning awareness about team members in regard to their learning patterns. The application of a learning instrument that focuses on learning pattern theory may help management and educational professionals increase their team learning skills by working through their team differences. It is conceivable that the application of the LCI may be widened to other disciplines as well and might also be applied at worksites. Perhaps, the LCI will

encourage adults to focus on their learning pattern differences rather than on their cultural, age, gender, race or ethnic differences.

While the LCI did enable students to broaden their understanding of their own learning, as an instrument to further team member interactions and building team member understanding, more time and research is needed. Continuing research is also recommended regarding the emerging concept of shared leadership (Pearce & Conger, 2003). Moreover, it should be noted that if a researcher were to compare multiple intelligence theory (Gardner, 1983) to learning pattern theory, the researcher would have to note that multiple intelligence theory is a cognitive based model, primarily; it does not address the constructs of affectation or conation. In addition, the LCI is not a personality or behavioral inventory and further research would also be needed regarding the correlation of a personality instrument, such as the Myers-Briggs inventory (Leonard & Straus, 1997) or a Learning Styles inventory (Kolb, 1984) with the LCI.

Research Significance

Instructors and facilitators may formulate teams on the university level by structuring teams utilizing the LCI. The application of a learning instrument that focuses on learning pattern theory will help business and educational professionals as aspiring leaders increase their self-awareness and their awareness of their team members. Utilization of the LCI may strengthen team formation by hastening team role identification. Furthermore, this study may aid instructors in developing their own action research team instructional models so that their adult students may develop their team and leadership skills and experiences through the application of learning pattern theory.

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Engagement in Multiple Roles: An Investigation of the Student-Work Relationship

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ABSTRACT

This study of 360 undergraduate business school students investigates the impact of the added role of paid worker to a student's well-being as well as role balance, role quality and role conflict. The extension of the work-family literature provided the theoretical underpinnings of the relationship between multiple roles and student success. Tests of the hypotheses provided strong support for the depletion argument of interrole conflict. Implications of the results on student learning and education, as well as for organizations, are discussed and suggestions for future research presented.

Introduction

The need for college students to engage in work as paid employees has been increasing over the last several decades. As the cost of education increases, student activities have become increasingly more complex. Students must often engage in multiple roles in order to fulfill financial, educational, and life requirements. For example, scholarships and financial aid may no longer be sufficient to cover the cost of tuition. Students may find themselves engaging in the added role of paid employee, as well as the traditional student participation roles in organized sports, clubs, fraternities and sororities, student government, etc. The financial burden of pursuing a college education has fallen on the student. Often, parents simply cannot pay or choose not to pay in full. As a result of the increased prevalence of employment obligations in the life of many college students, motivating them to engage in their schoolwork has become a greater challenge for educators.

In addition to the traditional student roles and the role of a paid worker, it is not uncommon for college students to have other commitments, such as marriage and parenting, while pursuing their education. Furthermore, the demographics of college enrollment have changed. Considerable and significant elements of the student body in many institutions of higher learning are non-traditional students. Therefore, within the context of being a student, much of the student-body is engaged in multiple roles. It is the engagement in other roles that may have an impact on one's motivation to engage in schoolwork and therefore become a source of interrole conflict.

This study investigates the multiple roles in which students are increasingly engaged. We are particularly interested in the role of a paid worker. We believe that work is a great resource drain on a college student's time and energy, thus serving as a source of interrole conflict.

Educational researchers have investigated the effects of multiple roles on educators and administrators, but very few studies have attended to the college student

population. In this research we focus on work-student role conflict to explore whether multiple roles are beneficial to the student's well-being as well as the importance of role balance, role quality and role conflict in the relationship. The few studies that exist will be reviewed. The absence, however, of a theoretical foundation for college students on this subject directs us to look to the work-family literature on multiple roles for much of its theoretical foundation. We will also test role conflict theory in terms of whether being a student interferes with work or, *vice-versa*, whether work interferes with being a student. Researchers have posited two competing arguments, depletion and enrichment, that have been used to address the dynamics of these multiple roles.

Theory and Hypothesis

Depletion Argument

The depletion argument of interrole conflict, according to Kahn, Wolf, Quinn, Snoek and Rosenthal (1964, p.19), is defined as the "simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with another." Opposing pressures arise from engaging in multiple roles, and these pressures can be incompatible by requiring different roles to compete for a person's limited time resources as well as the strains associated with one or more roles (Kopelman, Greenhaus & Connolly, 1983). The assumption underlining the depletion argument is that multiple demands of paid worker and student roles are detrimental to the individual and that role participation invokes stress, resulting in emotional strain (Rothbard, 2001).

Multiple roles may compete for a person's time where time spent on activities within one role cannot be devoted to activities within another role (Greenhaus & Beutell, 1985). As Lobel (1991) discusses, this utilitarian view of role investment suggests that one role is pitted against another thereby creating a win-loss equation - - time invested in one role depletes time devoted to another. This may occur in two different ways. First, time pressures associated with one role may make it physically impossible to comply with expectations from another role. Second, time pressures may also produce a preoccupation with one role while attempting to meet the demands of another role (Bartolome & Evans, 1979). According to Greenhaus and Beutell, role demands may not be met if a person is physically absent from a role or is mentally preoccupied with another role. As a result, time-based role conflict incorporates resource drain as the transfer of time or attention between roles. In addition, a recent study by Rothbard and Edwards (2003), suggests that people not only seek pleasure but also invest time coping with role displeasure. The depletion argument draws on work-family research that examines the conflict that work and family roles bring to an individual's life. Individuals become engaged in roles by responding to role demands. The engagement in the role causes strain. Strain is often conceptualized as a negative emotional response to stress that may result in depression or negative affect (Rothbard, 2001). In fact, Stoeva, Chiu and Greenhaus (2002) found that negative affect indirectly affected work-family conflict through its impact on job stress and indirectly affected family-work conflict through its impact on family stress. In addition, Bruck and Allen (2003) found that negative affectivity was most consistently related to various types of conflict. If one

transfers the depletion hypothesis to the work-student domain, then the more hours one spends on roles associated with work and student domains, the more conflict one would perceive. The basic assumption that the more hours expended on multiple roles will produce more conflict and, therefore, higher feelings of strain. This leads to the first hypothesis.

Hypothesis 1: The more time students engage in work while attending college, the less they will report feelings of well being (strain conflict).

Strain based conflict exists when strain in one role affects performance in another role. The incompatibility created by one role makes it difficult to comply with other roles (Pleck, Staines, & Lang, 1980). According to Edwards and Rothbard (2000) strain based conflict occurs when participation in one role produces strain that hampers role performance in another role. This definition implies that any work or school role characteristic that produces strain can contribute to a work-school conflict in college students. Also, there is some evidence that college student's expectations may play a role in work-school conflict. Barnett, Gareis, James and Steele (2003) found that college seniors whose mothers worked outside the home while they were children would express less concern about career-marriage conflict than those seniors whose mothers who did not work outside the home. In addition, seniors' expectations about the timing of their marriages and childbearing related to their concerns about career-marriage conflict (Barnett, et al., 2003). The role conflict comes from within the individual in the form of strain or stress that is internal. Often it is described as feelings of well-being.

Individuals may, however, work long hours and benefit psychologically if the work is satisfying. Greenberger and O'Neil (1993) found high levels of role satisfaction associated with low levels of depression and anxiety. The results of an analysis regressing men's stress related physical health problems on their subjective experiences in the paid worker role and the family role support the view that role quality is important (Barnett, Marshall, & Pleck, 1992).

Hypothesis 2a: There will be a significant positive relationship between the number of hours engaged in the student role and student satisfaction and role quality.

Hypothesis 2b: There will be a significant negative relationship between time engaged in the role of paid worker and student satisfaction.

Enrichment Argument

The enrichment process is an expanding theory of multiple roles which postulates that the available supply of energy to all of us is abundant and expandable. Some roles may be performed without any net energy loss and indeed may even create energy use in that role or other roles (Goode, 1960). Marks (1977) enumerated the following four points on the enrichment (expansion) process: 1) Rather than energy simply flowing out mechanically in response to role demands, individuals try to decide how to use their energy and which role will be honored. 2) People withhold the full flow of energy into a

given role, thereby freeing energy for other roles. 3) Feelings of energy loss are more of a function of role balance. 4) In the long run we have ample energy for all of our roles regardless of energy expenditures.

The enrichment process, as postulated by Marks (1977), suggests that as an individual increases his/her number of roles there is a gain or benefit from them (enrichment) rather than experiencing depletion. In addition, the enrichment argument assumes that the benefits of multiple roles outweigh the costs leading to gratification rather than strain (Rothbard, 2000). Social identity theory suggests role conflict can be avoided if the individual's values are similar in different roles (Lobel, 1991). Balance is achieved, in Lobel's terms, when there is self consistency across roles.

This enrichment process remains relatively unexplored in the literature. However, Barnett & Hyde (2001) present a review of the literature on the beneficial effects of multiple roles as it pertains to work and family issues. Their conclusions were that both men and women had benefited by engaging in multiple roles in terms of their mental health. Marks and MacDermid (1996) demonstrated that people with more balanced role systems will report less strain, more role-ease, greater well-being, and more positive role specific experience than people with less balanced role systems.

Role balance is a general orientation across roles. It is both a behavioral pattern of acting across roles in a certain way and a corresponding cognitive affect pattern of organizing one's inner life (Marks & MacDermid, 1996). Barnett & Baruch (1985) defined role balance as a measure of role quality and concluded that the quality of experience in work and parental roles was a significant predictor of role overload, and the quality of parental role experience was a significant predictor of role conflict as well as anxiety. Researchers are now attending more to role quality than to role occupancy (Barnett and Hyde, 2001). It is very likely that two or more individuals may occupy similar roles yet experience the quality of each role differently.

Hypothesis 3: There will be a significant negative relationship between well-being and both the number of roles and role balance.

The depletion argument posits, the more hours one spends on roles associated with work and student domains, the more conflict one would perceive. Role expectations may indicate which roles may be perceived more problematic in terms of strain or stress. For example, males may find that being a paid employee while attending college is a better fit to the male role stereotype of being a provider. Females may find that the role of being a student closer to the female gender role stereotype.

Hypothesis 4: In general, the more hours a student spends in work activities and the more they experience role balance (quality), the less he or she should experience work interfering with school activities (WIS).

Hypothesis 5: In general, the more hours a student spends in school activities and the more he or she experiences role balance (quality) the less he or she should experience school activities interfering with work (SIW).

Hypothesis 6: Undergraduate students who are paid workers will report more work interfering with school than school interfering with work.

Method

Participants

The data was collected as part of a Quality of Academic Life Study at a university in the North East. The sample consisted of 360 undergraduate students enrolled in a BBA program. Of the 360 students, 184 are male and 176 female; 334 single, 17 married, and 5 parents. The average age of the sample was 22.72. There were 189 seniors, 108 juniors, 32 sophomores, and 31 freshmen in the sample; while 305 were full time and 55 part-time students. 89 lived on campus, 86 lived off campus, and 183 lived at home. Of the 360, 93 were employed fulltime (35 hours or more), 184 part time, and 83 were not paid employees.

Procedure

Since it was important to have students in the study that worked, the data was collected at two different times in ten separate classes in a school of business. Six of the administrations of the Quality of Academic Life Survey were in day classes and 4 administrations were in evening classes. There was no subject loss or attrition rate since it was a one-time collection and whoever was attending class that day received the survey. All participants were volunteers and received no incentives to participate. They were given instructions by the authors which included guarantees of anonymity, how to use the scales, and instructions to return the completed surveys to a specific student, face down, who would then insert the surveys in an envelope and seal it. When the instructions were complete the authors and professor left the classroom leaving the students alone to complete the surveys. The length of time of administration of the survey was approximately 20-25 minutes.

Measures

Well-Being (Role Strain)

The General Well-Being Scale (GWB), developed for the National Center for Health Statistics, is a structured instrument for assessing self-representations of subjective well-being. Scale scores run from 14 (lowest well-being) to 134 (highest well being) for the first 18 items as described by Fabio (1977). A five or six point Likert type scale is used to collect responses to items such as "How have you been feeling in general?". Scale norms are available from a sample of 79 male and 119 female students at the University of Wisconsin, Milwaukee, in a freshman psychology class (Fazio). Mean scores for the first 18 items of the schedule were 75 for men and 71 for women. (SD = 15 and 18). Internal consistency reliability (Chronbach's alpha) was .91 for men and .95 for women.

Role quality

Two measures of role quality were taken on this sample. For each of the roles identified by the student, a satisfaction score was obtained by asking them to respond to the statement "Overall, how satisfied are you with this role." A seven point Likert type scale (1 = Completely Dissatisfied, 7 = Completely Satisfied) was used to collect the data. Satisfaction data was collected on the roles of student, paid worker, spouse, parent, student athlete, and student leader.

Role balance (Quality)

The second indicator of role quality was measured by The Role Balance Scale which is comprised of an eight item Likert type scale to which the participants are to respond on a 5-point scale whether they *strongly agree* (1) to *strongly disagree* (5) with each item (Marks & McDermid, 1996). The items orient the respondent to different nuances of the role balance construct such as enjoyment across roles, the balance of attention, the distribution of importance, the balance of satisfaction across roles, and the balance of effort. Often role balance has been used as a measure of role quality as well. Cronbach's alpha for the eight items was .68.

Role conflict

Work-student conflict is a modified version of an instrument that measured work-family conflict developed by Kopelman, Greenhaus and Connolly (1983). The student role was substituted for references to the family role used in the original instrument. Four items assessed whether work interferes with being a student (WIS) and another four items assessed whether being a student interferes with work (SIW). The participants' options for both scales were 5-point scales ranging from *strongly agree* (1) to *strongly disagree* (5). Cronbach's *alpha* for WIS was .81 and for SIW .79.

Results

Tests of Hypotheses

Before results were generated, tests of linearity were conducted on all relationships under investigation and the results indicated that there were no non-linear relationships. In addition, a power analysis indicated that all statistical tests had sufficient power to detect significant relationships beyond the .05 level.

Table 1 presents the results of hypotheses 1, 2, and 3. Table 2 presents the results of hypotheses 4, and 5. The presentation of the results of this study is organized in this order.

Table 1: Intercorrelations Between the Study Variables among All Student's. (=360)

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1. Well-Being	69.65	5.23	-							
2. Time Worked	27.83	12.88	-.13*	-						
3. Time Being a Student	20.07	16.39	-.07	-.14*	-					
4. Work Satisfaction	4.94	1.28	-.02	-.01	-.12	-				
5. Student Satisfaction	5.01	1.20	-.05	-.24*	.09	.11	-			
6. WIS	3.03	.86	.02	-.32*	.08	.18*	.21*	-		
7. SIW	3.29	.89	.04	.10	.06	.15*	.15*	.40*	-	
8. Number of Roles	2.02	.69	.00	.02	.04	.01	.07	-.16*	-.02	-
9. Role Quality	21.41	3.17	-.09	.13*	.07	-.21*	-.12*	-.09	-.14*	.01

Note: All tests are two-tailed. * $P < .05$. ** $p < .01$.

An examination of Table 1 indicates that as the time worked increases among students, feelings of well-being decrease ($r = -.13, p < .05$). Hypothesis 1 lends some credence to the depletion argument by supporting the notion that the investment of more time in one role can cause role strain (feelings of less well-being) as it depletes time available for other roles.

Hypothesis 2a did not produce significant findings between the number of hours engaged in the student role and student satisfaction and role quality. It appears as

students put more time in being a student their perception of satisfaction and role quality does not change much.

Hypothesis 2b investigated the relationship between time engaged in the role of paid worker and student satisfaction. Table 1 indicates that time spent being a paid worker is negatively related student satisfaction, ($r = -.24, p < .01$). This finding lends some support for the depletion argument in that the more time a student spends at work the less satisfied he or she is going to be in their other roles.

Hypothesis 3 did not produce a significant relationship between the number of roles one engages in and well-being ($r = .02, ns.$) and role balance ($r = -.09, ns$). This finding does not lend support for the depletion argument as it pertains to the work-student relationship.

Table 2: Intercorrelations Between the Study Variables among Student's Who Engage in Multiple Roles (n=287)

Variable	Mean	s.d.	1	2	3	4	5	6	7	8
1. Well-Being	69.67	5.21	-							
2. Time Worked	27.83	12.88	-.13*	-						
3. Time Being a Student	19.65	17.03	-.10	-.14*	-					
4. Work Satisfaction	4.94	1.28	-.02	-.01	-.12	-				
5. Student Satisfaction	5.03	1.20	-.10	-.24*	.10	.11	-			
6. WIS	2.98	.86	.03	-.32*	.06	.18*	.27*	-		
7. SIW	3.28	.90	.05	.10	-.11	.15*	.15*	.37*	-	
8. Number of Roles	2.29	.52	.00	.02	.00	.01	.09	-.08	-.01	
9. Role Quality	21.49	3.11	-.08	.13*	.10	-.21*	-.14*	-.13*	-.17*	-.05

Note: All tests are two-tailed. * $P < .05$. ** $p < .01$.

An examination of Table 2 (n=287, students with multiple roles only) reveals a positive significant relationship between time worked and role balance ($r = .13, p < .05$) and a

significant negative relationship between time worked and perceiving work interfering with school activities ($r = -.32, p < .01$). The more hours a student works the greater the role quality and the less they perceive that work interferes with school, thus supporting the enrichment argument. These findings support hypothesis 4. In addition, hypothesis 5 tests the relationship between the number of hours a student spends in school activities and role balance (quality) and with perceiving school activities interfering with work (SIW). An examination of Table 2 indicates no significant relationships among these variables lending no support to the enrichment argument.

In order to test hypothesis 6 a t-test was performed to test the differences in the means of WIS ($M = 2.96$) vs. SIW ($M = 3.27$). Results indicate students who occupy the role of paid worker perceive school interfering with work significantly more than work interfering with school ($t = -4.79, df = 259, p < .001$). These results lend no support to our hypothesis 6; in fact it is the reverse. This curious finding is discussed in the next section.

Discussion and Implications

Discussion

This research set out to examine how multiple roles may affect the management student's well-being and the importance of role balance, role quality and role conflict in the relationship. The entire sample consisted of students majoring in management. Seventy seven percent were paid workers, either full-time or part-time. The relationship between being a student and a paid worker was of the greatest interest in this research. The research on multiple roles for the work-family relationship guided the theory since little theoretical foundation had been established for the student-work relationship.

The depletion argument implies that the more time one spends in a role may make it more difficult to spend time in other roles which causes role strain, stress, and conflict. The findings in this study tend to support this position. The more time students engage in paid work, the less they reported feelings of well-being. It may be that the work-student relationship produces strain or stress that is internal and is described as feelings of well-being as Rothbard (2001) suggested. However, researchers also suggested that these findings can be attenuated by feelings of satisfaction. This was not fully supported by this research. No relationship was found between time worked and feelings of work satisfaction. Yet, we did find a relationship between time spent in the student role and student satisfaction. This finding suggests that students may find work as both instrumental and emotional in achieving their goal of acquiring a college education. The way time and work is structured may influence how and what students experience as paid workers. This, of course, will somewhat depend on how they approach being a paid worker: a role often being assumed for the first time. However, in the student role, the more time and effort one can devote to their studies, the greater the feeling of satisfaction. Obviously, the quality of the student role increases as one can increase the amount of time dedicated for learning.

Previous research from the work-family literature indicated that role balance attenuated the relationship between time worked and well-being. The question is whether this

theory would remain robust in the work-student domain. We approached role-balance from several different perspectives. Initially we investigated the relationship multiple roles may have with well-being and role-balance and surprisingly found no relationship to either. In other words, the number of roles and degree of role balance were not significantly related to a student's sense of well-being. The enhancement argument would suggest otherwise. This finding suggests that students approach multiple roles, especially the role of paid-worker, differently than subjects researched in the work-family literature. Perhaps it's the level of maturity of the individual, the degree of importance placed on the role of paid-worker and/or being skilled at time management that causes the difference. It was also suggested that there is either an emotional component involved or the lack thereof. Future research will have to determine this.

Next we turned to investigating role-balance in terms of conflict. Here we hypothesized that time worked, and role-balance would be related to WIS and SIW. We found a significant relationship between time worked and role-balance. In addition, a very strong negative relationship emerged between time worked and WIS. Role-balance was also significantly negatively related to SIW. It appears when directly asked about role conflict (e.g. WIS, SIW), role-balance and time are important issues for college students. Unlike time stressors, role-balance doesn't affect their well-being, but does affect their perception of role conflict. Yet, almost no relationship appears to exist between well-being and role conflict (WIS, SIW). This finding is an indication that role-conflict is perceived greater when there is a lack of role-balance in the student's life. If, perhaps, the lack of balance is because of time issues, then students may experience less feelings of well-being, but this issue will have to be investigated in future research.

When we investigated role conflict directly in the working student sample a curious finding occurred. It was hypothesized that working students would perceive work interfering with school more than school interfering with work but the reverse was found. A t-test revealed a very significant mean difference in these scores indicating a definite trend to perceive school interfering more with work. A possible explanation for this surprising finding is that work, for most of this sample, is the means of acquiring an education and without this means an education would not be possible for them. Somewhat indicating their perception of the importance of both activities is work first, then school. Also business school students usually are aware of the importance of work in one's life and the necessity of earning a good living, and, of course, their ultimate goal is to not only graduate, but to find a good job. Helpful in finding employment is work experience which is encouraged by the university. Interestingly, we did find a significant negative relationship between the amount of time engaged in paid work and level of satisfaction in the student role. This suggests that the opportunity cost of lower student satisfaction as a result of increased time engaged in work is justified by the necessary rewards associated with work. To state it differently, respondents perceive school interfering with work and report lower student satisfaction because work is what enables them to even engage in school. Without the benefits associated with being a paid worker, the role of student would not be an option. Thus, one is willing to sacrifice a degree of student satisfaction in return for the ability to occupy the role of student.

Although gender differences were not reported to any extent in the work-family literature, we believed that in this age group our subjects were going to perceive stereotypical gender differences in this study. Consistent with the work-family findings no differences were detected between males and females on school and work conflict. However, as expected, females had reported higher GPA's than males. We have come to the conclusion that gender issues are not relevant in this type of research. Whatever differences that existed in the past have narrowed considerably in this century.

Implications

The cost of education is on the rise and universities, including business schools, are in a competitive market for qualified students. Many parents can no longer afford to pay for the entire four years it usually takes to acquire a degree. The student is either put in a position of either getting a scholarship or finding paid work to supplement his or her expenses. This is the most common scenario in our sample of business school students.

The implications for this study center around two significant findings: (1) well-being is related to time engaged as a paid worker and (2) role-conflict is related to role balance for business school students. The first implication is that students' well-being is likely to continue to decline since the cost of an undergraduate education will continue to rise, thus, putting more pressure on students to work longer hours. As time related stressors continue to increase, feelings of well-being are likely to decrease. A student's well-being should be a concern for all universities; therefore, attention should be paid to these phenomena. Perhaps academic counselors need to be involved in students' employment decisions and make time management courses mandatory before engaging in paid work and psychological counseling provided for those students who are having a difficult time coping with stress. At the very least, they should be made aware of the existence of conflict between paid work and school and the importance role balance plays in this dynamic situation.

Another important implication is that role-balance or quality assists in reducing role-conflict between school and work. It is also positively related to time worked ($r=.13$, $p<.05$). Students who enjoy more balanced roles have slightly greater feelings of well-being and perceive far less conflict than those students with less balanced roles. Role-balance is a skill that is probably acquired later in a student's developmental cycle and is more likely to be a problem with students engaging in multiple roles. In our sample of students, the conflict emerged with students perceiving school as interfering with work and not the reverse as hypothesized. Are students willing to sacrifice academic achievement for the ability to pay for an education? This question needs to be investigated further. However, role-balance is a skill for which students can also be counseled and trained. Clearly, business school students can benefit from acquiring time and role management skills early, before they enter industry.

Moreover, organizations need to be cognizant of the finding that students sacrifice satisfaction in that role as time engaged as a paid worker increases. One could extrapolate that working students may not benefit from classroom learning to the extent

that non-working students do and, as a result, may be less versed in a particular area due to the choice of work over school. Rosa Beth Kantor (1977) in her seminal work, "Work and Family..." referred to the "myth of separate worlds" suggesting that managers tend to view an employee as being able to "leave home at home." This same sentiment can be applied to student learning. We should capitalize on their experience in classroom discussions, specifically inviting them to provide the application of theories as well as assisting in bridging of academe to practice. Also, educators need to remember that you get the whole student and if work is on their minds, school will suffer. This has important ramifications for organizations, in terms of recruitment, selection, training and development. Organizations would be well served to review selection plans to ascertain the weight assigned to school and work experience and its appropriateness. The organization is only as good as the people who comprise it.

Limitations

This research has several limitations that need to be addressed. Firstly, our sample was taken from a university in the North Eastern part of the United States which limits our findings to that part of the country. Though we believe that college students are a homogenous group as such and have many things in common across the country, replications in different geographical locations are necessary to generalize these findings to all college students. Secondly, this was cross-sectional research and as such no causality can be assumed between the hypothesized variables in this study. We can only establish the strength and direction of the relationships and this leaves us with descriptive information and not inferential results. However, we do believe as the initial study on the student-work relationship for college students it was the appropriate place to start.

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**Work-Family Conflict and Health:
A Study of Workplace, Psychological, and Behavioral Correlates**

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ABSTRACT

Quantitative methods are used to shed light on the relationships among work-family conflict, health, and other workplace, psychological, and behavioral constructs, i.e., organizational commitment, management/leadership relations, job knowledge and skills, job demands, workplace social relations, and readiness for change. A survey questionnaire was used to collect data regarding the perceptions of 464 employees in four organizations. Negative correlations were found between work-family conflict and all variables except job knowledge and skills. Significant relationships were also discovered between health and all study variables. Multiple regressions were used to explore the relationships between the demographic variables and work-family conflict and health.

Introduction

Improving the performance of employees has been a topic of great interest to practitioners as well as researchers. Work performance is the focus of much of the literature, e.g., Tracey, Hinkin, Tannenbaum, and Mathieu (2001). Throughout the past few decades however, performance research has also centered on a variety of nonwork issues including work-family conflict (Carlson & Perrewe, 1999) and mental and physical health (Ho, 1997; Voit, 2001). The term "work-family conflict" includes the tensions, challenges, and struggles individuals may perceive or feel related to their expectations, duties or requirements, and behaviors in, for, and between each role (work and family). For example, Thompson, Beauvais, and Lyness (1999) discovered that organizations that did not foster a more balanced work-family life for employees contributed to stress and tensions in employees' personal lives, which affected their ability to concentrate and be productive and creative on the job. Netemeyer, Boles, and McMurrian (1996) found that work-family conflict was negatively related to job performance. Other researchers (Burley, 1989; Eagle, Miles & Icenogle, 1997; Tompson & Werner, 1997) concluded that greater work-family conflict was linked to reduced concentration and attention on the job and was also linked to absenteeism, tardiness, turnover, low job commitment, low job involvement, overall performance, and reduced organizational citizenship, which, in turn, reduced overall work performance. The literature also supports important connections between mental and physical health and workplace performance. Voit (2001) found that workplace fitness and health programs improved employees' physical and mental health, and this improvement appeared to translate into positive effects on job performance and productivity. Ho (1997) reported that increased employee wellness (physical and mental) through participation in workplace health programs, led to

improved job performance through reduced employee stress and absenteeism and increased job satisfaction.

Research continues to be conducted in both the work-family conflict and health arenas as complex workplace relationships (e.g., mediators, antecedents, determinants, outcomes, and correlates) have been explored. As these relationships are investigated, a deeper understanding of these phenomena can lead to the design and development of support systems and programs that result in individual and organizational performance improvements. But first, it is important to study the basic correlations among work-family conflict, health, and other potentially related constructs such as organizational commitment, management/leadership relations, job knowledge and skills, job demands, social relationships in the workplace, and readiness for change. As new or existing relationships are discovered and/or supported, future research can then determine the specific variable relationship directions, e.g., antecedent, mediator, or outcome. Hence, the purpose of this study is to shed light on the basic connections between work-family conflict, health, and other workplace, psychological, and behavioral constructs. The literature has shown performance improvements through reduced work-family conflict and improved health. By investigating connections between these and other selected constructs, an enhanced understanding of possible influential factors, ultimately leading to workplace performance, can be acquired.

Theoretical Frameworks

Although role conflict theory has already received a great deal of attention in the literature throughout the past few decades, it provides one of two comprehensive theoretical frameworks for this study. This theory states that experiencing ambiguity or conflict within a role will result in an undesirable state. Because of conflicting demands (e.g., time, incompatible behaviors) among roles, multiple roles lead to personal conflict as it becomes more difficult to perform each role successfully (Grandey & Cropanzano, 1999). Biernat explained that role conflict exists when role expectations are incompatible. "Role strain or difficulty in meeting role demands is inevitable" and a person "must continually make role decisions and bargains in order to meet role requirements" (1997: 9). Greenhaus and Beutell suggested that work-family conflict exists when

- 1) time devoted to the requirements of one role makes it difficult to fulfill requirements of another;
- 2) strain from participation in one role makes it difficult to fulfill requirements of another; and
- 3) specific behaviors required by one role make it difficult to fulfill the requirements of another. (1985: 76)

In addition, Gutek, Searle, and Klepa (1991) explained that there are two directions of possible influence or spill over, i.e., work-to-family conflict and family-to-work conflict. Work-to-family conflict stems from interference of events in the work role with an individual's ability to perform effectively in his or her family role. Family-to-work conflict stems from interference of events or responsibilities in the family role with an

employee's ability to perform his or her job effectively. Aryee, Luk, Leung, and Lo (1999) purported that to truly understand work-family conflict both directions must be considered.

A second theory that appears to umbrella the role conflict theory as well as general health principles and findings is the spillover theory. Although it has primarily been used to explain how work influences family life and how family influences work life, it can also be used in thinking about how an individual's health status may affect other variables. In the work-family area, positive spillover would be affirmed when the satisfaction, energy, happiness, and stimulation an individual has at work would cross over into positive feelings and energy at home *or* when positive satisfaction, energy, and happiness from home crosses over to a positive experience at work (Higgins, Duxbury, Lee, & Mills, 1992). This could also be broadened to encompass the positive influence that low levels of work-family conflict or good mental and physical health have on job performance and other workplace outcomes. Again, in the work-family conflict arena, negative spillover from work to family is demonstrated when the problems, conflicts, or energy at work has strained and preoccupied an individual, making it difficult to participate in family life effectively and positively (Foley & Powell, 1997). Of course, negative spillover from family to work (e.g., divorcing, problems with children, or the death of a close friend or family member) can also be destructive. The spillover theory can also be broadened to encompass the negative effects high levels of work-family conflict or poor mental and physical health can have on various positive workplace outcomes.

Work-Family Conflict Literature

Reported are important relationships between work-family conflict and various constructs. First, many studies have found relationships between work-family conflict and health (mental and physical). Most of the findings support the premise that increased work-family conflict can lead to increased health concerns and problems. For example, Kinnunen and Mauno (1998) and Netemeyer et al. (1996) found a relationship between increased work-family conflict and increased physical symptoms or somatic complaints. Grandey and Cropanzano (1999) and others have discovered relationships between work-family conflict and overall physical health. Many researchers (e.g., Netemeyer et al., 1996; Thomas & Ganster, 1995) have concluded that increased work-family conflict is related to increased depression and other psychological issues (e.g., strain anxiety, irritability, and hostility). Overall, Frone, Russell, and Cooper stated, "Cross-sectional research provides consistent evidence that work-family conflict is positively associated with a host of adverse health-related outcomes" (1997: 325).

Second, Good, Page, and Young (1996) found an indirect relationship (through job satisfaction) between work-family conflict and organizational commitment. In other words, higher conflict was associated with lower commitment. Tompson and Werner's study suggested that "when individuals experience high levels of work/nonwork conflict, this impacts negatively on their commitment to their organization, which in turn leads to lower organizational loyalty" (1997: 594). Carlson, Kacmar, and Williams (2000) found that work-family conflict, particularly work-to-family conflict, did not have an impact on organizational commitment; however, organizational commitment was negatively

correlated with family-to-work conflict specifically related to behavior, i.e., challenges when an employee's behavior or expected behavior at work and home are different. Kirchmeyer (1995) discovered that negative nonwork-to-work spillover was slightly related to organizational commitment, being female, age, and having children under 12. Kossek and Ozeki explained, "The results of research on the relationship between work-family conflict and organization commitment are inconsistent" (1999: 22).

Third, Carlson et al. (2000) also discovered that work involvement does significantly correlate with work-to-family conflict. After conducting a review of the research, they also stated, "Although there are exceptions, most research shows that people who are very involved in their work tend to have higher levels of work-family conflict of all types" (2000: 23). This may provide support for a relationship between job demands and work-family conflict. In addition, Aryee, Luk, Leung, and Lo (1999) found that work overload (high job demand) is strongly related to both work-to-family and family-to-work conflict. Little is known from research about the relationship between job knowledge and skills and work-family conflict, but role ambiguity has been researched. It is clear that employees who have stress related to uncertainty or ambiguity in their jobs (often related to a lack of knowledge and skills) have higher perceptions of work-family conflict (Fu & Shaffer, 2001).

Fourth, Carlson et al. (2000) found that work social support (which may have some similarity to social relations in the workplace and management/leadership relations) is related to work-family conflict, primarily the conflict stemming from work and interfering with family (work-to-family conflict). Carlson and Perrewe studied the role of social support in the stressor-strain relationship and concluded that "social support may reduce perceived role stressors (conflict and ambiguity) and time demands, and thus, indirectly decreases work-family conflict" (1999: 521). Although social support and relationships between co-workers and with management are not exactly the same, there are some similarities that may provide some support for a directional hypothesis. Thomas and Ganster (1995) found that supervisor support reduced work-family conflict, while Batt and Valcour (2003) discovered no relationship. Anderson, Coffey, and Byerly (2002) found that managerial support was negatively and significantly correlated with work-to-family conflict and family-to-work conflict, while Frone, Yardley, and Markel (1997) concluded that supervisor support was related to work-to-family conflict and not family-to-work conflict, and co-worker support was related to neither. On the other hand, Fu and Shaffer (2001) found that work-to-family and family-to-work conflict was related to both supervisor social support and coworker social support. Therefore, the findings appear to be mixed.

Finally, little research has been reported on possible relationships between work-family conflict and readiness for change. However, as already discussed, high levels of work-family conflict have been linked to negative physiological and psychological health problems. And, one study (Cunningham et al., 2002) has reported relationships between change readiness and emotional health and availability. Further, Madsen (2003a) purported an indirect connection between wellness and readiness for change. Based on the above arguments, we propose the following:

Hypotheses 1a-f: Work-to-family and family-to-work conflict will be negatively related to perceived mental and physical health (a), organizational commitment (including loyalty, involvement, and identification) (b), job knowledge and skills (c), social relations (d), management/leadership support (e), and readiness for organizational change (f).

Hypotheses 2a-b: Job demands will be positively related to (a) work-to-family and (b) family-to-work conflict.

Physical and Mental Health Literature

Much of the current management literature on mental and physical health and wellness is related to the effects of implementing corporate health and wellness initiatives and programs on employees and employers. Although this study focuses on an employee's perceptions of health (unrelated to whether his or her company had a health or wellness program), a review of this literature can be helpful in creating directional hypotheses. Overall, Lansing and Kleiner stated, "The benefits received from developing a health and fitness attitude within a company's culture include an improved ability to handle stress, increased energy and stamina, and higher employee morale and team spirit" (1990: i). Further, after reviewing the literature, Rosen (1986) compiled a list of the ways poor health and stress can negatively impact a company's bottom line. These include job dissatisfaction, decreased motivation, poor morale, lack of commitment to quality, increased errors and missed deadlines, poor decision making, group conflict, complaints, accidents, EEO complaints, fatigue, premature retirement, poor interpersonal communication, absenteeism, turnover, reduced productivity, excessive health-care costs, short and long-term disability, workers' compensation premiums, accidents, and early pension payments.

The research also touches, more specifically, on some constructs related to this study. Researchers have confirmed a relationship between "implementing an employee fitness and health program into the workplace" and its impact on the "overall physical and mental health of the employees" (Voit, 2001: 274). In fact, Ho (1997) found that employees from organizations that offered wellness programs reported more commitment to their organizations, higher perceptions of satisfaction with co-worker relations, lower experienced work stress, higher work condition satisfaction, higher satisfaction with accomplishments, and lower absenteeism. Of course this may tell more about the nature of the organizations that have these programs than about the results of the programs. Further, Daley and Parfitt (1996) found that employees participating in health promotion interventions at work improved in their attitudes related to organizational commitment, supervision (management/leadership relations), and working conditions. And, Thomas and Ganster (1995) agreed and stated that managerial interventions had a positive impact on the general well-being of employees. Finally, Anderson, Coffey, and Byerly (2002) found that the perception of low managerial support indirectly relates, through work-family conflict, to increased stress which has been shown to effect personal health.

The literature on the relationships among health and social relations, job demands, and readiness for change was also explored. First, Daley and Parfitt (1996) did not find a

significant relationship between health and relationships with co-workers. Yet, Greenberg et al. (1995) did find that unhealthy workers diminished performance can dramatically affect coworker relations and performance through increased accidents and errors. Second, Yetman (1998) reported that employees who participated in a controlled exercise program were better able to handle job demands through improved stamina, energy, and patience, as well as enhanced concentration and decision-making powers. Further, Grandey and Cropanzano (1999) found a relationship between poor physical health and work role stress. Finally, Madsen (2003a) proposed an indirect relationship between employee wellness and readiness for change but research is limited. Based on the above arguments, we propose the following:

Hypotheses 3a-e: Mental and physical health will be positively related to perceived organizational commitment (including loyalty, involvement, and identification) (a), job knowledge and skills (b), social relations (c), management/leadership support (d), and readiness for organizational change (e).

Hypothesis 4: Mental and physical health will be negatively related to job demands.

In addition to the four proposed hypotheses, we were also interested in exploring the various relationships between various demographics (gender, employee age, marital status, educational level, length of time with employer, and number of children) and each of the study variables (work-family conflict, health, organizational commitment, management/leadership relationships, job knowledge and skills, job demands, social relations and readiness for change).

Research Methods

Sample

The sample for this research study included respondents from four business organizations (three for-profit and one non-profit) within the state of Utah with approximately 200 to over 2,000 local employees. 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 selected a random sample of about two-thirds of all employees for the fourth company. In addition to the actual survey, a letter of consent which had been approved through our Institutional Review Board was also given to each employee.

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 employees should be given. We kept a list of numbers given to each organization, and we tracked returned surveys. Researchers did not have a list of employee names, and contacts did not see completed surveys so confidentiality was maintained. Survey numbers were used to identify organizations. After approximately ten days we asked the organizational contacts to provide a general reminder to all participants to return surveys. Additional

copies of surveys were given to the contacts so that they could provide them to employees who may have misplaced their original copies. For three organizations, pre-addressed and stamped envelopes were provided so employees could mail surveys directly to us. One organization asked participants to seal completed surveys in envelopes provided and then to put them in large envelopes located in each department (this was the method used for all employee surveys for this organization). The following week a researcher picked up the sealed envelopes. Again, before the surveys were distributed, we asked the contacts at each organization to encourage their employees to return as many surveys as possible so that results would be more accurate.

Measures

For this study, work-to-family conflict, family-to-work conflict, mental health, and physical health served as the four dependent variables. Organizational commitment (including loyalty, involvement, and identification), management/leadership relationships, job knowledge and skills, job demands, social relations in the workplace, and readiness for change served as independent variables. Intervening demographic variables included gender, age, marital status, educational level, number of children, and length of time with company. We adapted existing scales for this research project, and we included six demographic items. All scales, except for the readiness for change scale, used a 7-point (*strongly disagree to strongly agree*) scale (see Exhibit for actual questionnaire).

Work-family Conflict

Six slightly adjusted items from an 18-item multidimensional measure of work-family conflict constructed and validated by Carlson et al. (2000) were used to measure work-to-family conflict (3-items) and family-to-work conflict (3 items). These adjusted items were used in a later study (Madsen, 2003b), and the reliability was consistent with Carlson et al.'s (2000) original items and study. The original instrument used a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), but we changed it to a 7-point scale for consistency with other scales. According to Carlson et al. (2000), the instrument was subjected to rigorous development and validation procedures and reliability was established with coefficient alpha with scale reliabilities ranging from .78 to .87. Reliability for the 6-item scale dropped substantially from the 18-item instrument: overall work-family conflict measure (alpha=.64); work-to-family conflict (alpha=.58), and family-to-work conflict (alpha=.41).

Organizational Commitment

A 9-item scale (alpha=.81) was used to measure organizational commitment. This scale, obtained from Mathews and Shepherd (2002), was said to be slightly adapted from Cook and Wall's (1980) British Organizational Commitment Scale. It included three 3-item subscales: identification (alpha=.68), involvement (alpha=.59), and loyalty (alpha=.66).

Readiness for Change

We used Hanpachern's (1997) original 14-item readiness for change scale (with slight alterations) which was based in part on McNabb and Sepic (1995) and several unpublished studies. The stem question asked was "My willingness or openness to...", and one of the items was "work more because of the change is..." Participants were asked to circle one of seven numbers on a Likert scale (1=very unlikely; 7=very likely). Hanpachern (1997) pilot tested three versions of this scale, and the Cronbach's alpha of the final 14-item scale was measured to be .82 which indicates good internal consistency (Hanpachern, Morgan, & Griego, 1998). Our slightly adjusted instrument also had a Cronbach's alpha of .82.

Health, Management/leadership Relations, Job Knowledge and Skills, Job Demands, and Social Relations

The four final scales were adapted from subscales within Hanpachern's (1997) Revised Margin in Life instrument which had already been modified from the original published survey by Stevenson in 1982. These adapted scales, along with the previous scales discussed, were pilot tested (n=44) to ensure internal consistency. First, the mental and physical 7-item scale was adapted from the subscale mentioned, but a few additional items were added based on a general review of the health component literature. The revised scale included four items focused on mental health (alpha = .78) and three on physical health (alpha = .72). Second, a 4-item scale was used to measure an employee's relationship with his or her manager. Our slightly revised scale demonstrated internal consistency at .87. Third, a 3-item scale was used to measure job knowledge and skills. Our revised scale demonstrated internal consistency at .62. Next, a 5-item scale was used to measure job demands and, as with the last three scales mentioned, was adapted from a social relationships subscale of Hanpachern's (1997) Revised Margin in Life scale. This revised scale demonstrated internal consistency at .66. Finally, a 4-item scale (alpha=.70) was used to the social relationships in the workplace.

Demographics

The participants were asked to check the appropriate box in the demographic section of this questionnaire. Demographics included gender, age range, present marital status, highest educational level, number of children living at home, and length of time with company (see Appendix A for copy of instrument).

Data Analysis Procedure

A number of statistical tests were used to analyze the results of this study. First, frequencies, means, and standard deviations were used to describe the sample (demographics) and general results. Pearson correlations were used to test magnitude and direction of the relationship for the hypotheses. The primary method of analysis for demographics was a linear multiple regression. This was useful in determining the relationships between the primary constructs (work-to-family conflict, family-to-work

conflict, mental health, and physical health) and the combination of applicable demographic (predictor) variables for the sample.

Table 1
Demographic Frequencies

<i>Demographic</i>	<i>Category</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

**The demographics on approximately 10 surveys were not completed so totals in each demographic group do not equal 464.*

Results

Of the 758 distributed questionnaires, 469 were returned; and 464 were deemed usable and were included in the study results for a return rate of over 61 percent. Five surveys were returned too incomplete to use. Return rates in the four organizations ranged from 51 percent to 72 percent, and 10 surveys were completed; returned but the survey numbers (used to identify companies and departments) had been removed. Selected demographic results were gathered and compiled (see Table 1).

Work-Family Conflict Correlates

Overall, employees in this study perceived themselves as having moderate to low levels of work-to-family conflict with a statistical mean (M) of 3.32 on the 7-point scale described, and fairly low family-to-work conflict ($M = 2.29$). In addition, employees appeared to be fairly committed to their organizations ($M = 5.17$), and they generally reported their jobs were demanding ($M = 5.36$). These employees reported confidence with their job knowledge and skills ($M = 5.84$), believed they have good management/leadership relationships ($M = 5.80$), were fairly ready for change ($M = 5.27$), and were neutral with regard to their workplace social relationships ($M = 3.68$) (see Table 2).

Table 2

Intercorrelations Among Study Variables

Variable	M	SD	1	2	3	4	5	5a	5b	5c	6	7	8	9
1. WFC*	3.32	1.21	--											
2. FWC	2.69	1.03	.42	--										
3. MH	5.93	.80	-.19	-.25	--									
4. PH	5.70	1.16	-.17	-.17	.50	--								
5. OC	5.17	1.00	-.30	-.25	.23	.21	--							
a. Loy	4.42	1.44	-.27	-.17	.11	.08	.87	--						
b. Inv	5.83	.88	-.17	-.31	.30	.24	.72	.43	--					
c. Iden	5.25	1.27	-.28	-.19	.21	.23	.88	.63	.53	--				
6. JD	5.36	1.28	.48	.17	-.10	-.16	-.20	-.21	-.08	-.17	--			
7. JKS	5.84	.77	-.01	-.08	.37	.17	.10	.01	.24	.05	.02	--		
8. SR	3.68	1.06	-.22	-.23	.29	.21	.38	.29	.31	.34	-.17	.19	--	
9. MLR	5.80	.84	-.28	-.18	.23	.17	.59	.50	.35	.58	-.22	.08	.38	--
10. RFC	5.27	.73	-.19	-.10	.23	.18	.45	.28	.51	.39	.02	.21	.18	.31

$r \geq [.10]$, $p < .05$; $r \geq [.14]$, $p < .01$; $r \geq [.16]$, $p < .001$; $n=464$

*WFC=Work-to-family conflict; FWC=family-to-work conflict; MH=mental health; PH=physical health; OC=organizational commitment; Loy=loyalty; Inv=involvement; Iden=identification; JD=job demands; JKS=job knowledge and skills; SR=social relationship in the workplace; MLR=management/leadership relations; RFC=readiness for change.

The first hypotheses (1a-f) were analyzed using a Pearson correlation statistical test with significance determined at the following levels: $r \geq [.10]$, $p < .05$; $r \geq [.14]$, $p < .01$; $r \geq [.16]$, $p < .001$. As predicted, this correlational analysis showed that work-to-family and family-to-work conflict were negatively linked to mental health ($r = -.19$; $r = -.25$), physical health ($r = -.17$; $r = -.17$), and organizational commitment ($r = -.30$; $r = -.25$) and

its three subscales: loyalty ($r = -.27$; $r = -.17$), involvement ($r = -.17$; $r = -.31$), and identification ($r = -.28$; $r = -.19$), respectively. In addition, this type of conflict was negatively related to social relationship ($r = -.22$; $r = -.23$), management/leadership relationships ($r = -.28$; $r = -.18$), and readiness for change scores ($r = -.19$; $r = -.10$), as predicted. However, no relationship was found between either work-to-family or family-to-work conflict and job knowledge and skills.

The second hypotheses (2a-b) predicted that there would be a positive correlation between work-to-family and family-to-work conflict and job demands, and this was the case. Work-to-family conflict and job demands were strongly related ($r = .48$) while, although still significant, its relationship with family-to-work conflict was somewhat weaker ($r = .17$).

Mental and Physical Health Correlates

The third hypotheses (3a-e) were also analyzed using a Pearson correlation statistical test. As predicted, this correlational analysis showed that mental health and physical health were positively related to organizational commitment ($r = .23$; $r = .21$) and two of its three subscales: involvement ($r = .30$; $r = .24$) and identification ($r = .21$; $r = .23$), respectively. In addition, work-to-family conflict was also related to loyalty ($r = .11$), however, family-to-work conflict was not. As predicted, both (mental and physical health) were also positively related to job knowledge and skills ($r = .37$; $r = .17$), social relationships in the workplace ($r = .29$; $r = .21$), management/leadership relationships ($r = .23$; $r = .17$), and readiness for change scores ($r = .23$; $r = .18$).

The fourth hypothesis predicted that there would be a negative correlation between mental health and physical health and job demands, and this was the case. Mental health ($r = -.10$) and physical health ($r = -.16$) were weakly related to job demands.

Demographic Relationships

Multiple regressions were used to analyze the relationships between the study constructs and the six demographics variables (i.e., gender, employee age, marital status, education level, number of children, and length of time with employer) and few significant relationships were discovered. In fact, none of the demographics studied appeared to have any predictive power with regard to family-to-work conflict, mental health, or physical health (see Table 3). It does appear, however, that employee age and the length of time an employee worked for a company are weakly (although significantly) related to work-to-family conflict ($R^2 = .029$; $\Delta R^2 = .15$).

Discussion

The results of this study suggest that work-family conflict and health are influenced by and/or have influence on many work and nonwork factors. This study provides support for the role conflict theory that states that experiencing ambiguity or conflict within a role will result in an undesirable state. These results suggest that high work-family conflict is related to lower levels of desirable work and nonwork factors (e.g., organizational

commitment, health); however, we did not study the direction of these relationships. For example, work-family conflict may lead to lower organizational commitment, while health problems and management/leadership concerns may be, at least in part, responsible for increased work-family conflict. In addition, these results also support the spillover theory that states that negative spillover from one role to another is demonstrated when the problems, conflicts, or energy in one role has strained and preoccupied an individual, making it difficult to effectively and positively participate in another, and positive spillover is just the opposite (Foley & Powell, 1997). For example, good health appears to be related to many constructs including readiness for change, management/leadership relationships, and organizational commitment. This study supports the premise that positive or negative elements from one role (self, work, nonwork) influence or impact elements in another.

Table 3

Demographic Multiple Regressions

Variables	Work to Family Conflict			Family to Work Conflict			Mental Health			Physical Health		
	R ²	Δ R ²	β	R ²	Δ R ²	β	R ²	Δ R ²	β	R ²	Δ R ²	β
Gender			.03			-.08			-.02			-.02
Employee age			-.12*			-.02			.01			-.11
Marital status			.08			-.05			.05			.04
Educational level			.04			-.01			-.07			.02
Number of children			.04			-.02			.01			.08
Time with organization	.03	.02	.14*	.01	-.004	.03	.01	-.002	-.07	.03	.02	-.10

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

This research suggests that work-to-family and family-to-work conflict are related to organizational commitment, and this is consistent with much of the past literature (e.g., Good et al., 1996; Tompson & Werner, 1997). It is possible that employees who are better able to balance the demands of both work and family are able to feel more loyal and involved in their organizations. In fact, these organizations may be assisting employees through work design, flexibility, and other work-family initiatives or programs which may be helping employees better balance their role responsibilities. Employees typically do feel more committed to a company that appears to be committed to and concerned about them. According to Cook and Wall (1980), this commitment stems from employees' loyalty to the company, their perceived involvement in the organization, and the level of organizational identification they feel. Our research found

that all three contribute to organizational commitment's relationship with both directions of work-family conflict.

Other relationships are also notable. First, the finding that both directions of conflict are linked to job demands makes sense. When employees are feeling high demands for their time and energy at work, the role conflict theory proposes that an employee would then need to make sacrifices in other roles because of this increased strain and stress, thus increasing their work-family conflict. Second, social and management/leadership relationships in the workplace can be examples of an employee's support system. The literature (e.g., Carlson & Perrewe, 1999) substantiates the premise that supportive environments help reduce an employee's stress and strain. Our findings that lower levels of work-family conflict are related to perceptions of good management/leadership relationships and strong social relationships substantiates past literature (e.g., Anderson et al., 2002; Thomas & Ganster, 1995). This provides support for the argument that when employees have opportunities to develop healthy and open relationships with management, their work-family conflict levels may decrease. And, as we have already discussed, reduced work-family conflict has been linked to increased productivity and performance (Netemeyer et al., 1996; Eagle et al., 1997). Third, this is one of the first studies that provides support for a relationship between work-family conflict (both directions) and employee readiness for organizational change. It may be that employees have more emotional and physical energy as well as time to make changes if they are not struggling with conflicts between the work and nonwork domains.

This study also suggests the mental health and physical health are related to organizational commitment. In the case of mental health, it appears that all three organizational commitment components are contributors to this relationship (loyalty, involvement, and identification). However, the strongest relationship appears to be with work involvement. An employee's health, both physical and mental, often dictates the level of involvement an employee may have at work. Physical health is also related to organizational commitment, but not because of loyalty. An employee's physical health often determines the level of involvement he or she can have at work. Interestingly, it appears that employees' pride and identification with a company may decrease when he or she does not feel physically well. Overall, according to our results, when employees feel good, they are more loyal, involved, and committed to their organizations. Basically, assisting employees in improving their health may be one method that helps increase overall organizational commitment.

These results also support some existing research. First, findings suggest relationships among work-to-family conflict, family-to-work conflict, physical health, and mental health which are consistent with what others have found (e.g., Kinnunen & Mauno, 1998; Netemeyer et al., 1996). Second, there was slight evidence that as job demands increase employee's personal health may decrease. However, the opposite may also be the case; if employees feel healthy and energetic they may be able to keep up with job demands and not feel overwhelmed by them. Third, job knowledge and skills appear to be related to both mental and physical health. More specifically, employees who perceive high levels of knowledge and skills related to their jobs also perceive good health. Maybe continued uncertainty and stress related to not knowing what one needs

to know or not being able to do what needs to be done to perform effectively leads to perceptions of decreased health possibly through increased stress, strain, or depression. Other employees may feel this extra pressure does not let them do the types of activities that would lead them to feel healthy. Future research in this area would be necessary to determine the specific relationship and direction. Fourth, this research also suggests that employees who perceive higher levels of health also have better social relationships in the workplace and better relationships with their managers and leaders. When individuals do not feel well, they may not reach out to create and maintain such relationships. Often, employees with physical and mental struggles have less optimistic attitudes and perceptions toward many issues. Finally, it appears that employees who are healthier are also more open and ready for organizational change. This is a new area of research, and these results are encouraging. In today's business environment, the need for change is constant and continuous. Organizations are trying to find ways to help employees change faster and better. Finding ways to facilitate more readiness for these changes is an emerging area of research. Most likely, the relationship among these constructs is as already stated; as employees become healthier, they are more prepared and ready for organizational and individual change.

Suggestions for Research and Limitations

There are many areas of research that are imperative for this work to continue moving forward. First, more causal-comparative and experimental research need to be conducted to determine causality of the constructs explored in this study. Relationship directions on some constructs have been purported and proposed but without adequate support. Second, longitudinal studies in this research area are currently rare. Specific research carefully designed to look at changes throughout time can be helpful in understanding these phenomenon as well as possible interventions resulting from these and other related findings. Third, research with regard to work-family conflict and health-related workplace antecedents and/or determinants as well as mediators need to continue to be explored and clearly reported. More specifically, additional research designed around the new relationships discovered in this research (e.g., readiness for change, job knowledge and skills) should be investigated. Fourth, specific workplace interventions focused at increasing the constructs addressed in this and other research need to be examined. Pre- and post-surveys should be used to documented changes as they relate to reduced work-family conflict and/or improved health. Finally, there are many possible influential factors for these constructs that have not yet been studied. We would strongly recommend a thorough research project focused on exploration, compilation, and publication of all the management, human resource development, and organizational psychology research on these influential factors specific to the workplace environment should be conducted. Although there are some scholars who have done some of this in work-family conflict, an update is needed. A current and thorough compilation in the mental and physical health and related workplace performance constructs is overdue. Clear identification of these factors and a list of possible or potential factors that have yet to be explored would be most helpful for researchers, scholars, and practitioners.

Although the sampling methods may have limited the generalizability of these findings, participants were selected from four different organizations and included a variety of individuals with different positions and in different industries. The study was limited to 758 employees; a larger and fully randomized sample would have improved generalizability. In addition, this study was limited only to the factors that may influence change readiness. An individual's work-family conflict and health 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. Estimates of these constructs were based upon employee perceptions and self-report. Finally, although we used adapted versions of existing instruments the scale reliabilities were good except for the two work-family conflict scales (one being particular poor). Therefore, caution must be used to generalize any of the related results.

Contributions and Implications

This study offers contributions to management, human resource development, and organizational psychology literature. First, it provides support for some of the existing literature and presents some new constructs for consideration in this area. Second, it provides support for new relationships, such as readiness for change, which may provide support for additional workplace work-family conflict and health interventions. Third, it supports the premise that work-family conflict and health are complex phenomenon and influential factors need to be explored for progress in both research and practice. Finally, although cause-effect conclusions cannot be made from these findings, practitioners may begin to utilize this information to assist them as they assess, design, and evaluate new and existing programs or initiatives.

The results of this study suggest recommendations for practitioners. Many organizational leaders consider health and work-family conflict interventions as nonessential or unrelated to the bottom line. Leaders and managers need to be educated about the relationships among employee productivity/performance (bottom line) and the workplace, psychological, and behavioral correlates that influence them (including health, work-family conflict, organizational commitment, and the others reported in this article). For example, managers and supervisors need to have positive and supportive relationships with their employees. Management training in this and other areas is imperative since most do not understand the positive benefits of having this type of relationship with their employees. Overall, interventions based around these relationships should be considered. This research can also provide support for human resource professionals who are writing proposals for such initiatives.

Organizational leaders who put forth resources (e.g., time, educational opportunities, and money) toward these types of efforts may see the benefits, particularly if connections are made between these constructs and performance/productivity increases. In addition to these increases, if designed and implemented well, these initiatives and interventions can also lead to positive results, excitement, organizational renewal, and increased employee loyalty, commitment, and retention. Importantly, initiatives that have direct or indirect effects on the productivity of our employees can also assist in promoting organizational competitiveness in the market place.

Appendix A

Employee Survey

Part 1: Assume your organization has proposed a change to increase effectiveness and enhance productivity. For this change to be accomplished, it requires your resources and energy. Please determine how likely you are to feel or react in the ways described below. Please answer for yourself. There is no right or wrong answer. Your choice of answer is on a scale from one (1) to seven (7). One equals very unlikely and seven equals very likely.

My willingness or openness to...

	Very Unlikely			Very Likely			
1. Work more because of the change is	1	2	3	4	5	6	7
2. Solve organization problems is	1	2	3	4	5	6	7
3. Be a part of the new project is	1	2	3	4	5	6	7
4. Create new ideas is	1	2	3	4	5	6	7
5. Find ways to make the change fail is	1	2	3	4	5	6	7
6. Do things in a new or creative way is	1	2	3	4	5	6	7
7. Change the way I work because of the change is	1	2	3	4	5	6	7
8. Take responsibility for the change if it fails in my area is	1	2	3	4	5	6	7
9. Be a part of the change program is	1	2	3	4	5	6	7
10. Learn new things is	1	2	3	4	5	6	7
11. Change something even if it appears to be working	1	2	3	4	5	6	7
12. Support change is	1	2	3	4	5	6	7
13. Improve what we're currently doing rather than implement a major change is	1	2	3	4	5	6	7
14. Sell ideas about the change is	1	2	3	4	5	6	7

Part 2: Read each statement and then circle the number that best represents your agreement or disagreement. One (1) equals strongly disagree and seven (7) equals strongly agree.

	Strongly Disagree			Strongly Agree			
1. I feel an obligation to my job.	1	2	3	4	5	6	7
2. My work keeps me from my family activities more than I would like.	1	2	3	4	5	6	7
3. I am quite proud to be able to tell people that I work for my company.	1	2	3	4	5	6	7
4. The people I have met at my job are great.	1	2	3	4	5	6	7
5. Meeting job/task assignment deadlines is very easy.	1	2	3	4	5	6	7
6. The time I spend on family responsibilities often interfere with my work responsibilities.	1	2	3	4	5	6	7
7. Working with others is often difficult.	1	2	3	4	5	6	7
8. My knowledge and skills concerning my present job are strong.	1	2	3	4	5	6	7

Part 3: Read each statement carefully and then circle the number (see list below) that best represents your feelings and views. Please read through the five descriptions before answering.

- 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 job, 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

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

Part 4: Please put an X in the appropriate box. Your answers will be confidential; the information in this section will not be reported in a manner that individuals or small groups could be identified. Your company will not see any surveys.

1. Gender:
 - Male
 - Female
2. Age Range:
 - less than 21
 - 21-30
 - 31-40
 - 41-54
 - 55+
3. Present Marital Status:
 - Single
 - Separated/Divorced
 - Widowed
 - Married
4. Highest Educational Level:
 - High School
 - Associate Degree
 - Bachelor Degree
 - Masters Degree
 - Doctorate Degree
5. Number of children (if any) living at home in each age category (*write the actual # of children in the spaces provided*):
 - _____ Check if you have no children
 - _____ 0-5 years old
 - _____ 6-11 years old
 - _____ 12-18 years old
 - _____ 19+ years old
 - _____ Number not living at home
6. Length of time with company:
 - 0-6 months
 - 7-11 months
 - 1-2 years
 - 3-5 years
 - 6 or more years

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Digging a Hole at Diamond Realty

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ABSTRACT

This case centers on the Director of Human Resources research into a \$45,000 shipment from Bathes Inc., a supplier of bathroom fixtures and accessories that had unexpectedly come to the office. Her preliminary research uncovered an embezzlement scheme between four related employees to move corporate funds into private accounts as well as to purchase goods and services on corporate credit cards. A private investigator uncovered the details of the scheme as well as major home improvements made to certain suspects' homes that could not be connected to personal credit card charges, loans/credit lines, or withdrawals from bank accounts. Part A of the case end's with the Director's presentation of the findings to the CEO who breaks down and cries. In Part B of the case we find out that no action has been taken by the firm, the embezzling employees continue to accrue wealth at the company's expense, and the firm has ironically hired two more of the suspects' family members.

Digging a Hole at Diamond Realty* Part A

"How could this happen," sobbed Conrad Jefferson, CEO and founder of Diamond Realty. "I trusted these people and this is how I get treated? Why did they do this to the Company and me? I should fire them immediately. Or is there something else I should do?"

Background

Diamond Realty, a publicly traded real estate investment trust, owned and operated the nation's largest portfolio of neighborhood and community shopping centers (measured by gross leaseable area). Diamond had interests in 495 properties comprising approximately 66.5 million square feet of leaseable area in 41 states.

Since its incorporation in 1966, the Company specialized in the acquisition, development, and management of strategically located centers with strong growth potential. Self-administered and self-managed, the Company focused on increasing the

cash flow and enhancing the value of its shopping center properties through strategic re-tenanting (replacing old tenants with new ones as soon as lease terminations are announced), redevelopment, renovation and expansion. The Company achieved dramatic growth through selective acquisitions of neighborhood and community shopping centers that had below market-rate leases or other potential cash flow growth.

The Company's common shares were traded on the New York Stock Exchange. Some financial information follows.

In 2002, funds from operations increased 14.8% to \$254.1 million from \$221.4 million. Net income increased 16.0 % to \$205.0 million from \$176.8 million. Funds from operations per diluted common share increased 11.6% to \$4.03 from \$3.61. Net income Per Diluted Common Share increased 16.3% to \$2.86 from \$2.46. Annual dividends paid per common share increased 12.2% to \$2.66 from \$2.37.

The main headquarters of the office was located in Queens, New York and consisted of about 250 people. There were 13 regional offices across the country. The department represented within this case was the Financial Operations Department (see Appendix A for the organizational chart).

Something is Rotten

In February of 2003, Mary the receptionist received a phone call concerning a delivery of expensive products to the office. During the conversation, she discovered that a \$45,000 shipment from Bathes Inc., a supplier of bathroom fixtures and accessories, was expected to come to the office and someone needed to sign for it at the front desk. Since this was highly unusual, Mary was unaware of what to do so she forwarded the call to the Human Resource Department. Kitty, the Director of Human Resources, received the call from reception. After speaking with Mary, Kitty found that the items were purchased on a corporate credit card and were to be delivered that day. There were no names attached to the order. Usually the mailroom received shipments and Allan or Earl would sign for them, and then have them delivered to the department or person. Kitty felt this was odd. She held up the order and began doing some research.

After speaking with a number of people, including the vendor, she began to piece together an intriguing process.

The Hole Gets Dug

Allan Herald was hired as a mailroom clerk in 1995. Over time he became the mailroom coordinator. Allan was responsible for the distribution of interoffice mail, out going mail, and incoming mail. He was also responsible for all of the Company's banking deposits on a daily basis.

Earl Herald, Allan's older brother, started with the company in 1999. He also worked in the mailroom as a clerk. Earl alternated with Allan on the daily deposits for the Company.

John Moses, Allan's first cousin, was hired to work in the Management Information Systems Department in 1999. He was responsible for solving employee computer problems, and for helping with computer programs and Internet access. As an MIS technician John could fix anyone's computer anytime from his personal computer. He simply would sign on as one of the employees and would work as if he was at that employee's computer station. To do this, John had access to every employee's password and PC at anytime of the day. In addition, John monitored daily usage of the Internet by employees from his workstation.

John devised a scheme in which he monitored usage of the Internet and used the corporate credit card number for his personal use. John told Allan about the possible use of the credit card. Allan seized upon the idea and ordered some items for the remodeling of his home. Had it not been that Allan made it public knowledge about his remodeling, nor for the mistaken vendor delivery call, the scheme would have gone undetected. Obviously, the vendor made a mistake in the delivery. Rather than sending the merchandise to the mailroom, the vendor sent it to the reception area. In speaking with the vendor, Kitty learned that a new employee of the vendor made the mistake. The vendor was very apologetic.

Kitty continued her extensive research. She did a thorough investigation on Allan and his family. She examined their daily functions and responsibilities. Unfortunately, the research was becoming too time consuming. Kitty approached her manager, the Chief Operations Officer (COO), and made him aware of the situation. The COO set up a meeting with the Chief Financial Officer and the Vice President of Financial Operations. They advised her to hire a private investigator, who would provide objective information of the employees in question.

The Investigator's Report

A private agency was engaged and began an exhaustive investigation of those suspected. After two weeks, the investigator had sufficient information to understand the scheme. The following findings were reported to Kitty:

- Every day, taking turns, Earl and Allan stopped by a post office box in the middle of the night. They picked up a bag of mail and brought it to Earl's home, which was closer than Allan's house.
- Allan's house recently was fully renovated. Included was a new roof, new siding, new kitchen, new bathroom with a Jacuzzi, and a new concrete driveway.
- Allan's credit cards had no significant charges over the last year for any of the improvements performed on the house. The assumption was that only cash was paid to contractors or laborers.

- Kitty informed the investigator that the corporation's express mail provider changed from FedEx to UPS back to FedEx in a year and a half's time. The investigator then discovered that the UPS account manager for Diamond Realty, and other corporations he was managing, was accused of smuggling drugs with Allan to and from other countries. No charges were filed against Allan.
- The private investigator also learned that the post office box was registered to a fictitious person with a signature that identically matched Allan's. After obtaining written permission from Kitty, the investigator viewed the contents of the post office box. He discovered that the box was full of checks, each for a different amount, made out to different vendors, companies, and people. After further research, he found that most of these companies and people were fictitious. The checks ranged from \$5.35 to \$10,000 with some being duplicates, but were cut from different Diamond Realty bank accounts.

With the help of some accounting clerks, Kitty checked out the financial information. She never informed the clerks as to why she was working with all these vendors, but rather that there was a "glitch" in the system that needed to be corrected. The clerks and Kitty discovered the following:

The mailroom clerk (either Allan or Earl) was responsible to pick up all the deposit slips for newly opened bank accounts. An account could be opened by telephone. Deposit slips were picked up in person. Since the monthly bank statements were mailed to the Corporation, Allan or Earl opened and delivered all the mail. Deposits were made to that company's account. The company was fictitious and created by Allan. Earl or Allan made deposits, and since no one was aware of this, the account could be closed at any time. The bank check Allan received from closing an account would be made to that fictitious company. He would cash the check at the same bank and deposit it into his own personal account.

Also, Allan created fake vendors and fake invoices and had Diamond Realty checks paid to those vendors mailed to a post office box. Not to arouse suspicion, most checks were cut to a vendor only once and in small amounts (under \$100) that hardly were ever examined. For example, assume 10-15 phony corporate accounts were created to deposit the checks. Allan would have a small number of checks (one or two) or a larger number (from forty to fifty) per week arriving at the post office box. These checks were from Diamond Realty payable to the phony vendors. Then Allan would deposit the checks in the phony bank accounts. Endorsement of the checks was made with a stamp. The checks were deposited and cleared, the money withdrawn, and eventually the account closed.

Next, the accounting clerks and Kitty did vendor research. Kitty inquired as to how did vendors get entered into the accounting system and who approved them? The process was that Accounts Payable created vendors in the system after a request was formally (in writing) applied for with all the proper information. Required information for a request was name, address, Federal Employer Identification number, and a signature from a manager. All approved requests were entered by Alberta.

Alberta Johnson started with the company in 1994 in the file room, which was part of the mailroom. Since she was there before Allan, she trained him on the file systems. She left the file room to become the corporation's full time receptionist. After a year, she became the assistant to Ellen Houlihan, manager of Accounts Payable. Ellen was with the Company since 1987 and was responsible for all payments on bills, mortgages, and vendor invoices. She was at one point the only person running the Account Payables Department. In 2001 Ellen died of cancer. Within 2 months after her death, Alberta was promoted and a new accounting system was created.

Because Allan and Alberta were friends, Alberta didn't question any vendor request forms that came from Allan. Alberta "let it slide" if the proper information and signatures were not presented. Since Alberta was the Accounts Payable Supervisor, she had the authority to delete vendors and their past activity (e.g. checks previously written out) if necessary or if she desired.

Alberta spent hours working on the "in's and out's" of the new system helping to perfect it for Diamond Realty. With Alberta being the only individual in her department with full knowledge of the Accounts Payable system, she trained all her subordinates. Therefore, based on her expertise of the system, no one questioned Alberta.

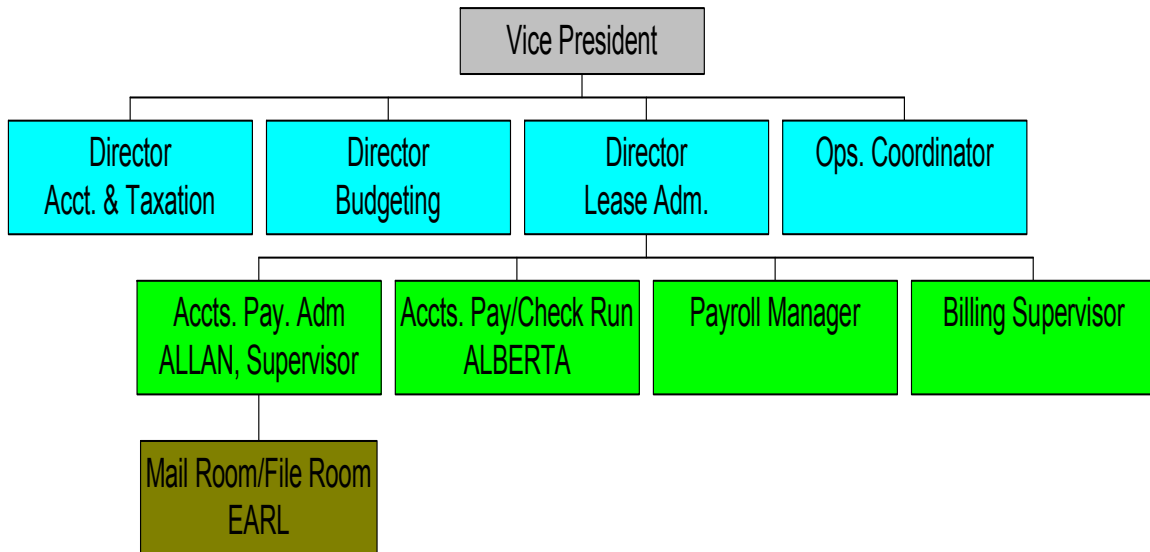
Kitty further discovered that since Alberta became supervisor, checks were mailed to the post office box. The probability of her involvement was quite high. It was common knowledge that Alberta just took a long honeymoon vacation in Fiji, threw an expensive wedding, and bought a new home.

Once Kitty had all of this information she was confident that Allan, Earl, John, and Alberta were accomplices in this matter. She quickly updated the COO with the facts, who advised her to go to the CEO, Conrad.

The Meeting with Conrad

Kitty entered Conrad's office. Conrad, a jolly friendly man, was CEO and founded the company back in the 1950's. Well over eighty years old, he was one of the richest men in real estate in the country. He was sitting in his oversized leather chair while on the phone and had no idea what was coming. Kitty sat down and started to tell him about the call which led to the investigation. She gave him the step-by-step account of the investigator's and her clerk's findings. She informed him of all who were involved in the scheme. The CEO took a deep breath, shook his head, and began to cry!

Appendix A
Organization Chart for Diamond Realty
Financial Operations Department
2002



Digging a Hole at Diamond Realty Part B

As of January 2003, there was enough evidence to arrest Allan on embezzlement and credit card fraud. However, since Allan and other's actions were so complex, the magnitude of the embezzlement was uncertain. Like wise, the monetary extent of the damages was difficult to compute. Further, Conrad feared having Allan and his cohorts fired since he believed that the firm would never get the information about the embezzled funds. The employees in question remained employed, were never warned, and the private investigator was still working on the case.

In the mean time, Allan and his wife announced that Allan graduated from college and hoped to obtain a new position at Diamond in the Accounting Department. However, if the Company did not "promote" him from the mailroom, Allan and his wife will move to Florida into a brand new house they purchased. When asked, Allan's wife was very sure of the move, while Allan shrugged his shoulders and said that he was staying.

Earl was still working in the mailroom. And John bought a house worth over a half a million dollars in an affluent neighborhood. Both Allan and John were in a private college that was paid for by the Company. Their tuition (\$9,500 each per semester) was more than anyone ever received in the Company and greatly exceeded the corporate limit of \$6,000 total per person.

Allan requested more help in the mailroom, which was subsequently approved by Conrad. Allan was given the authority to hire whomever he wanted. He convinced the Vice President that for "continuity" and "diversity", two family members should be hired. Dario (17 years old) was Allan's nephew and Jack (27 years old) was John's little brother. They worked 40 hours a week, did not graduate from high school, and had absolutely no experience. They grossed anywhere from \$700-\$1000 per week.

**All events are true. Names have been changed to provide confidentiality. For a detailed teaching note contact Barry Armandi.*