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

Sukumar C. Debnath
Prairie View A&M University

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).

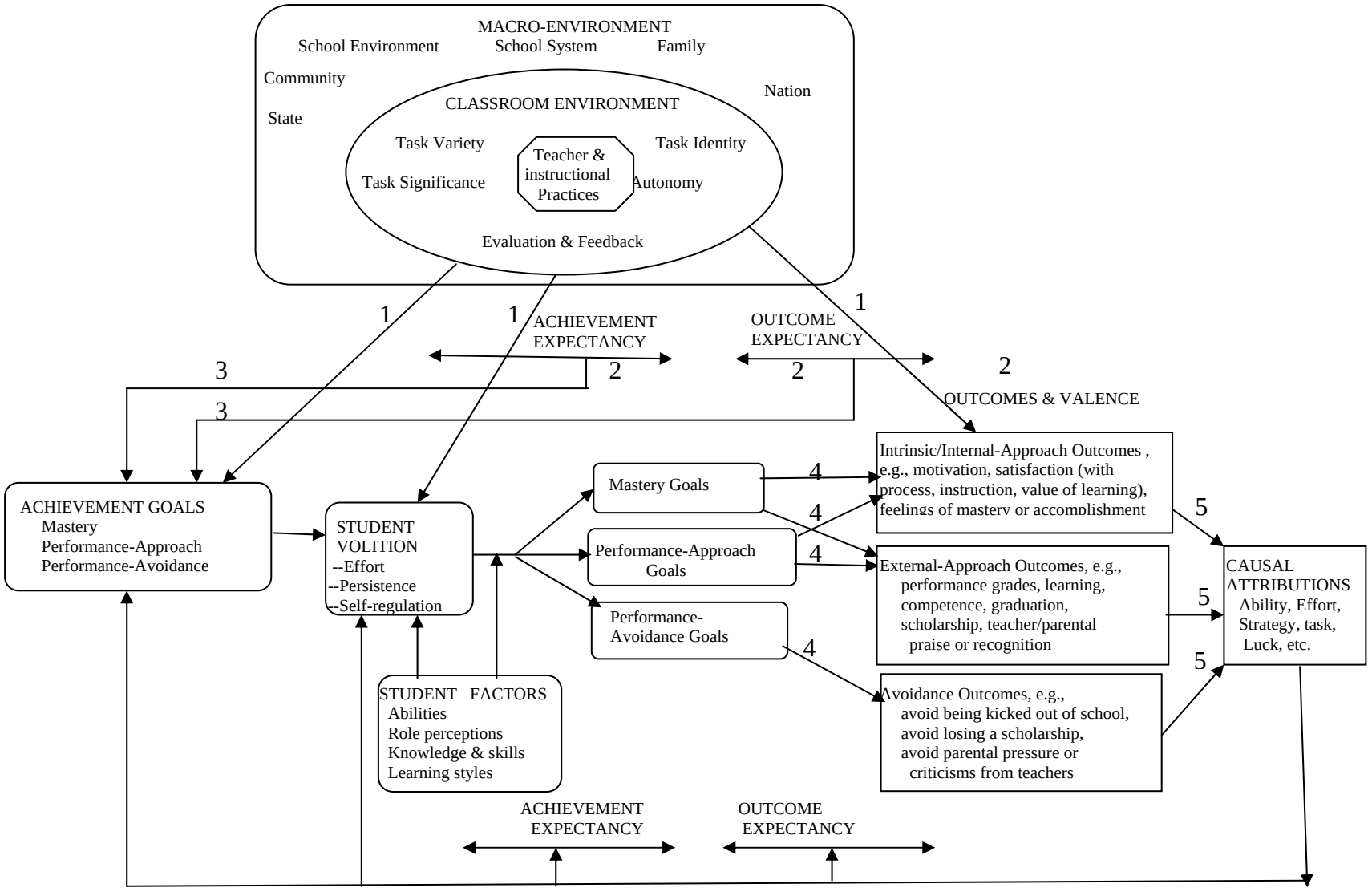
Next, many years of psychological and educational research provide complementary perspectives because the educational literature guides us in identifying the actual classroom practices by teachers (e.g., guidance, provision of choice, reinforcement, confidence building) that influence students' attitudes 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 form 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, 980), 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 Lengnick-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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