Motivational Systems Theory And The Academic Performance Of College Students

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ABSTRACT

This study explored the validity of the Motivational Systems Theory (MST) as a measure of performance of college students pursuing business degrees and the level of academic performance attained across gender and race lines. This goal is achieved by investigating the relationships between motivational strategies, biological factors, responsive environment factors, skill/prior ability, and academic performance of these college students and the impact on the level of academic performance by the college students' gender and race. The unit of analysis used in this study was 259 college students pursuing business degrees in an institution of higher learning in the south-eastern region of the United States. The instrument of choice was the Motivated Strategies for Learning Questionnaire (MSLQ) which was used in prior studies to survey the relationship between motivation and learning strategies and performance of students in the disciplines of arts and sciences, philosophy, psychology and natural sciences. The MSLQ will be used to obtain students responses to 50 questions pertaining to their college experience as relates to their motivation and application of learning strategies. The results indicated that the motivational systems theory is a valid predictor of performance. The female students' levels of academic performance were higher than their male counterparts irrespective of race. The biological trait, test anxiety, impacted Caucasian females more than the other gender or race groups. ANOVA confirmed that statistically significant relationships existed between academic performance and demographic variables gender and race. MANOVA confirmed that the differences in performance levels across gender and race lines were statistically significant. The results strongly supported the premise that the levels of academic performance are impacted significantly across gender and race lines for college students pursuing degrees in accredited business programs.

INTRODUCTION

While reviewing past research on motivational behavior, works validating the majority of the motivational theories were found to be well documented. Self-efficacy theory (Bandura, 1977), was validated by the works of Bandura (1986) himself, Paul Pintrich, and Dale Schunk (1989). The goal orientation theory was validated by the works of Ames (1987,1992), Locke and Latham (1990), Paul Pintrich and Dale Schunk (1996). Expectancy theory was validated by the works of J. Eccles (1983, 1989), and J. Eccles and A. Wingfield (1992, 1994). However, there was no recorded research available to validate Martin Ford's motivational systems theory.

From available research on motivation and academic performance, it became quite evident that motivational constructs do in fact impact the academic performance of students. There are studies documenting the correlation of the Scholastic Aptitude Test, American College Testing (Ward, 1993), Mathematics (Carpenter, 1993; Ward, 1993; Gist, 1996), High School Grade Point Average (Price and Kim, 1976; Carpenter, 1993) and College Entrance Examination (Price and Kim, 1976) scores and the performance of college students. Also well documented are studies in the areas of arts and sciences, psychology, philosophy, and natural sciences. Studies documenting the correlation of motivational behavior and the performance of students in a college business environment appear to be nonexistent.

Theoretical Framework

A direct offspring or subset of Sigmund Freud's theory is Martin Ford's motivational systems theory (MST). This framework focuses on the individual as the unit of analysis, but embeds the individual in the biological, social, and environmental contexts that are crucial to development. MST attempts to describe the development of the whole person-in-context, in much the same way a biologist might describe an individual plant and its relation to its immediate ecological niche, as well as the larger ecosystems in which it resides (Pintrich & Schunk, 1996). Ford proposed a simple mathematical formula that attempts to represent all these factors in one model. The formula for effective person-in-context functioning is:

$$\text{Achievement} = \frac{(\text{Motivation} \times \text{Skill})}{\text{Biological Structure}} \times \text{Responsive Environment}$$

The formula proposes that actual "achievement and competence are the results of a motivated, skillful, and biologically capable person interacting with a responsive environment" (Ford, 1992, p.70). The motivational systems theory does not attempt to replace or supersede any of the existing theories. Instead, it attempts to organize the various motivational constructs from different theories into one model. The main constructs are self-efficacy beliefs, the role of expectancy, and goal orientation. The formula suggests that in any behavior episode, there are four major prerequisites for effective functioning:

1. The person must have the *motivation* needed to initiate and maintain the activity until the goal directing the episode is attained.
2. The person must have the *skill* necessary to construct and execute a pattern of activity that will produce the desired result.
3. The person's *biological structure* and functioning must be able to support the operation of the motivation and skill components.
4. The person must have the cooperation of a *responsive environment* that will facilitate progress towards the goal (Ford, 1992).

This model attempts to provide a comprehensive theory of motivation and proposes that actual achievement and competence are the results of a motivated, skillful, and biologically capable person interacting within a responsive environment.

Purpose Of The Study

The purpose of this project was twofold. First, an effort was made to authenticate and validate Martin Ford's motivational systems theory; namely, validate that actual achievement and competence are the results of a motivated, skillful, and biologically capable person interacting within a responsive environment. A second purpose was to document the levels of academic performance of students, pursuing business related studies, in a college environment across gender and race lines.

REVIEW OF THE LITERATURE

Motivation Defined

Due to the numerous studies of motivation during the twentieth century, many theorists have produced their own definition of motivation. Hull (1943, p. 226) defined motivation as "the initiation of learned, or habitual patterns of movement of behavior." Megginson (1953, p. 15) proposed that "the study of motivation is the study of why people do things; why they behave in a certain way; why they conform to a certain pattern." Beck (1978, p. 24) stated that, "Motivation is broadly concerned with the contemporary determinants of choice, persistence, and vigor of goal-directed behavior." Mitchell (1982, p. 81) said that, "Motivation [represents] those psychological processes that cause arousal, direction, and persistence of voluntary actions that are goal directed." Steers and Porter (1987, pp. 5-6) believe that "When we discuss motivation, we are primarily concerned with (1) what energizes human behavior; (2)

what directs or channels such behavior; and (3) how this behavior is maintained or sustained.” According to Albert Bandura (1991, p. 158) “Motivation is a multidimensional phenomenon indexed in terms of the determinants and intervening mechanisms that govern the selection, activation, and sustained direction of behavior.”

In the Motivational Systems Theory, motivation is defined as the organized patterning of three psychological functions that serves to direct, energize, and regulate goal-directed activity: personal goals, emotional arousal processes, and personal agency beliefs (Ford, 1992, p. 3). Symbolically this definition of motivation can be represented as a formula of three interacting components:

Motivation = Goals x Emotions x Personal Agency Beliefs

Therefore, motivation is an interactive construct representing the direction a person is going, the emotional energy and affective experience supporting or inhibiting movement in that direction, and the expectancies that a person has about reaching their destination or achieving their goals. MST does not prefer or rank, any one of the three components, it views all three components as functioning in an interdependent triumvirate process. If any one of the components are absent in a particular episode, then the subject will not be motivated to initiate activity even though the other two components are firmly in place (Ford, 1992). There has been a great deal of disagreement among researchers about the nature of motivation and the operation of motivational processes. However, most professionals agree that the presence of motivation was inferred from the behavioral indicators, choice of tasks, effort, persistence, and achievement. Although the index *choice of task* may sound appealing, it is usually not a useful index in the academic setting as students typically have few choices in that environment. In the academic setting, students who are motivated to learn usually expend *effort*, the second index, to succeed. Students motivated to learn usually expend greater mental effort during instruction, organizing, and rehearsing information, monitoring level of understanding, and relating new material to prior knowledge (Pinrich & De Groot, 1990). Some researchers, like Albert Bandura, Paul Pintrich, and Dale Schunk, have all assessed students’ mental effort and found a relationship to self-efficacy. Self-efficacy, on the other hand, correlated positively with effort and achievement (Schunk, 1983).

In the academic environment, students who are motivated to learn should persist at tasks when they encounter obstacles. Persistence is important as learning does not always result in instant gratification. Persistence relates to the sustained component of motivation and the greater the persistence, the greater the accomplishments and rewards. Researchers frequently utilize *persistence* as a valid and measurable component of motivation. Brown and Inouye (1978) had college students solve anagrams and on completion they were informed that they had performed as well as the model. The students were then made to observe another model which failed, and were made to attempt the same anagrams as the failed model. The students outperformed that model. Showing the students that they were more competent than a model led to higher self-efficacy and persistence. Student *achievement* may be viewed as an indirect index or measure of motivation. Research has shown that students who chose to engage in a task, expended effort, and persisted, were more likely to achieve at a higher level (Pintrich & Schrauben, 1992; Schunk, 1991) and researchers have obtained positive relationships between achievement and motivational indices of choice of task, effort and persistence. In a simple but effective experiment, Dale Schunk (1983) found that the more practice students obtained while in training (effort and persistence), the more successful they were in solving similar problems on an examination (measure of achievement).

Research Questions

1. Is the academic performance of college business students directly related to motivation, skill, and a responsive environment?
2. Is the academic performance of college business students indirectly related to biological composition of the students in the classroom environment?
3. Does the performance of college business students differ across gender and race lines?

METHODOLOGY

Unit Of Analysis

The subjects in this study consisted of 259 students attending a public university in the southeast region of the United States. The subjects consisted of 161 African-American students and 98 Caucasians, comprising 150 females, 109 males, 37 freshmen, 42 sophomores, 54 juniors, 109 seniors, and 17 graduate students. The respondents, who were administered the survey during the Spring and Summer semesters, were enrolled in accredited degree-seeking business programs, and attempting courses in the subject domains of accounting, business economics, finance, general business, management, or marketing.

The Survey Instrument

The Motivated Strategies for Learning Questionnaire (MSLQ) developed for the National Center for Research to Improve Post-secondary Teaching and Learning was the instrument utilized in this study. The instrument was specifically designed to assess motivation and the use of learning strategies by college students and consists of 81 questions. Only 50 of those questions were utilized for this study as follows; motivation was represented by 27 items, biological structure was represented by five items, and responsive environment was represented by 19 items. The reliability and predictive validity of the instrument were tested by a team of researchers headed by Paul Pintrich (1993). The results of that project were published in *Educational and Psychological Measurement* in 1993. The results suggested that the instrument had relatively good reliability in terms of internal consistency. The general framework and its measurement scales seem to be valid. The sub-components also displayed predictive validity ability. The instrument was also found to be suitable for predicting the performance of students enrolled in business courses (Campbell, 2000). The MSLQ seems to represent a useful, reliable, and valid means for assessing college students' motivation and performance levels.

Motivational Constructs

The theoretical framework for conceptualizing student motivation and academic performance is an adaptation of an effective person-in-context functioning in a responsive environment model of the motivational systems theory (Ford, 1992; Pintrich & Schunk, 1991). The model proposes that there are three motivational components: (a) the value component, which includes students' goals and beliefs about the importance and interest of the task; (b) the expectancy component, which includes students' beliefs about their ability to perform a task; and (c) an affective component, which includes students' emotional reaction to the task. For the purposes of this study, the motivational strategies pertain to two areas, namely, value: intrinsic and extrinsic goal orientation and task value; and expectancy: control beliefs about learning and self-efficacy.

Prior Skill Construct

The prior skill strategies, which include students' prior knowledge, abilities, and skills that may be applied to the task, are introduced to this study to satisfy the skill component of the motivational systems theory formula. College students' prior-knowledge learning strategies, and good study habits accumulated while attending high school, play an important role in these students' performance especially in their freshmen years. Robert Eskew and Robert Faley (1988) eloquently stated this in their research published in *The Accounting Review*:

Before the effect, if any, of high school exposure to bookkeeping/accounting can be adequately addressed, however, it is necessary to isolate those factors that may be related to student academic performance overall. Moreover, it is necessary to isolate factors that may be uniquely related to performance in collegiate introductory courses. Together, these factors should contribute to an improved understanding of why some students perform better than others in their first college-level courses and whether pre-college study affects performance in the first college-level course. (pp. 137-138)

Factors affecting the overall academic performance of students have been well documented in the educational literature. For example, it is well known that past academic performance (high school grades and GPA) is significantly related to and positively associated with future performance (Eskew & Faley, 1988; Gist, 1996; Price and Kim, 1976). For the purposes of this study, high school grade point average (GPA) at graduation will be used as the predictor of high school skills, knowledge and performance.

The Biological Variable

For the purposes of this study the biological component was measured by the scale Test Anxiety. Test anxiety represent three anxiety factors, namely, anxious arousal, over-sensitivity, and worry and is represented by five items on the survey. Test anxiety has been investigated by researchers and findings indicated that test anxiety is a predictor of performance (Kaufman, 1999 & White, 1999). The biological structure pertained to the area of affect and is represented by the level of test anxiety. This study examined the relationship that existed between the biological structure variable and performance of college students.

Responsive Environment

For the purposes of this study, research management strategies will be the component of learning strategies that will exemplify the effect of the “responsive environment” component of Martin Ford’s motivational systems theory. Responsive environment components include students’ collaboration with their peers, willingness to seek help, and the ability to manage and regulate their time and study environment. These strategies are used by students to self-regulate both personal and environmental resources for academic tasks (Paulsen & Gentry, 1995). Study-environment management includes establishing and maintaining study areas that are well defined, quiet, and organized. Effort management strategies include positive mood maintenance, self-talk, persistence management, and self-reinforcement. Support strategies include seeking help from teachers, tutors, peers, and peer groups (Paulsen & Gentry, 1995; Pintrich & De Groot, 1990). Research has shown that college academic performance is positively related to the effective use of resource-management strategies (Borg, Mason & Shapiro, 1989; Pintrich, 1989). Responsive environment component was represented by four scales, namely:

1. Time and Study Environment (TSE). Students must be able to manage and regulate their time and their study environment. This scale was assessed by the students responses to eight items on the survey which pertained to scheduling, planning, managing their study time, and selection of their study environment, with respect to being well organized, quiet, and relatively free from distractions.
2. Effort Regulation (ER) pertains to self-management, and reflects a commitment to completing students’ study goals, even when there are difficulties and distractions, which is of ultimate importance to academic success. Self-regulation was assessed by students’ responses to four items on the survey which pertained to their ability to control their effort and attention in the face of distractions and uninteresting tasks.
3. Peer Learning (PL). Students collaborating with their peers has been found to have positive effects on achievement. Peer learning was assessed from the students’ responses to three surveys items pertaining to their ability/desire to dialogue with peers in an effort to clarify and/or resolve course material and resulting in a better understanding of the course material.
4. Help Seek (HS) pertains to another aspect of the environment that the student must learn to manage; that is, the support of peers, instructors, and helpful others. This scale is assessed by students’ responses to four items on the survey indicating their intentions to utilize peer help, peer tutoring, and individual teacher assistance to facilitate their achievement.

Performance

For the purposes of this study, the measure of academic performance was the Final Course Grade (FCG) of the students in the specific course over the duration of a semester. This decision to utilize the final grade as the measure of performance was in keeping with prior research in this area (Paul Pintrich and Elizabeth DeGroot, 1990, Paul Pintrich et al, 1993, and Michael Paulsen and James Gentry, 1995). The grading system in effect at all

institutions assigned points (on a 100 point scale) or grades on the traditional letter scale (A, B, C, D, or F). The distribution of grades allowed all students the possibility of receiving an A or 100 points for each course.

The first purpose of this study (related to research questions #1 and #2) was to investigate the levels of correlation between academic performance and motivational, aptitude/prior skill, and biological variables for college students in a responsive college business environment in an effort to validate the Motivational Systems Theory which posits:

$$\text{Performance/Achievement} = \frac{(\text{Motivation} \times \text{Skill}) \times \text{Responsive Environment}}{\text{Biological Structure}}$$

To accomplish this investigation, the data for the variables were grouped in their respective scales, then subjected to mean level analysis. Descriptive statistics for each construct were calculated, tabulated and compared. Data was then subjected to univariate Scheffe confidence intervals. To avoid interaction among scales these post hoc tests were conducted separately. The results are presented in Table 1, Table 2, Table 3, Table 4 and Table 5.

ANALYSIS AND PRESENTATION OF FINDINGS

Analyses

The second purpose of the study (research question #3) was to examine the levels of academic performance for the sample population of students across gender and race lines. To investigate the levels of performance across gender and race lines, the following groups were studied, namely, a) males all races, b) males: African American, c) males: Caucasian, d) females all races, e) females: African American, f) females: Caucasians, g) African American, and h) Caucasians. To ensure that the magnitude of the relationship between the constructs and performance were not as a result of interaction among the constructs themselves, each scale was individually correlated to the performance component and results calculated. The results were tabulated and are presented in Table 2.

Presentation Of Findings

The first research question pertained to the relationship between motivational strategies and the academic performance college students. The findings for each motivational scale component are presented as follows:

Intrinsic Goal Orientation

The degree to which the students perceived themselves to be participating in the academic task for reasons of challenge, curiosity, and mastery. Results indicated main effect positive interaction with academic performance ($M = 4.86$, $p < 0.05$, $r = 0.35$) for the sample. Two of the sub scales, challenge and mastery, also had significant relationships with academic performance of $r = 0.32$ and $r = 0.36$ respectively.

Extrinsic Goal Orientation

The level to which the students were concerned with issues which were not directly related to participating in the task, such as, grades, rewards, and comparing performance with others. The results indicate that the sample of students were most interested in their level of performance or getting good grades as evident through a positive correlation ($M = 5.48$, $p < 0.05$, $r = 0.29$).

Task Value

Students evaluated the course material in terms of interest, important, and utility. The results indicated a high level of interaction between task value and academic performance of the African-American college students ($M = 5.41$; $p < 0.05$; $r = 0.52$). The results indicated that the sample college students did not only find the courses that they pursued interesting, but also important and usable in their future careers. Task value had a much higher level of

correlation with performance than the two prior value components, intrinsic and extrinsic value. The coefficient alpha was tabulated at 0.89.

Control Of Learning Beliefs

This scale was used to measure the level to which students believed that their efforts to study made a difference in their learning. The results indicated that this scale interacted with the African-American college students performance ($M = 5.42$; $p < 0.05$; $r = 0.33$). The sub-scales also displayed high levels of interaction with the students' performance which indicated the students' confidence in their ability to master the academic tasks and obtain an excellent grade.

Self-efficacy

This scale measured the students' ability to master tasks and confidence that they possessed the skills to perform the tasks. The results indicated that self-efficacy, or the ability of the sample of African-American college students interacted strongly with their academic performance. This construct's correlation coefficient was robust, with coefficient alpha tabulated at 0.90 ($M = 5.67$; $p < 0.05$; $r = 0.50$). Each sub-scale also displayed significant interaction with the students' academic performance.

The first research question was concerned with the relationship between the academic performance of the college students and aptitude (prior skills). Aptitude is a measure of skills that the students had acquired or attained prior to their admission into college. The medium used to measure the students aptitude/prior skill was the students' high school overall grade point average (GPA). The results indicated that the relationship between the students performance and GPA was at an extremely significant level ($M = 3.25$; $p < 0.50$; $r = 0.38$). The relationship between the academic performance of the college students and the responsive environment constructs were as follows:

Time And Study Environment

This scale measured the level at which students must be able to manage and regulate their time and their study environment. The sub-scale concerned with good use of study time showed the highest correlation ($r = 0.39$) with the students' performance. The results indicated that time and study environment as utilized by the sample of college students is positively related to the students' academic performance ($M = 5.12$; $p < 0.05$; $r = 0.27$).

Effort Regulation

This scale measured the level of students' effort and commitment to completing their study goals, even in the presence of difficulties or distractions. The results indicated that all four sub-goals were above the significance correlation level of $r > 0.15$. The results indicated that effort regulation was related to the academic performance of students ($M = 5.24$; $p < 0.05$; $r = 0.27$).

Peer Learning

The level of collaboration with peers to assist a learner to clarify materials and reach insights on coursework that was not attained in the classroom. All three of the sub-scales were significantly related to academic performance. The results indicated that peer learning was significantly related to the academic performance of the college students ($M = 3.85$; $p < 0.05$; $r = 0.36$).

Help Seeking

Research has indicated that peer help, peer tutoring, and instructor assistance facilitate student achievement. The results indicated that students participants in this study did not fully utilize these resources. Although the scale was positively related to the students academic performance, the magnitude of that relation of two of the sub-scales were less than the acceptable significance level for this study of $r > 0.15$ ($M = 4.46$; $p < 0.05$; $r = 0.23$).

The second research question pertained to the relationship between the academic performance of the college students and the biological construct, test anxiety. The results indicated that most of the sub-scales and the biological component of test anxiety were negatively related to academic performance ($F = 3.70$; $p < 0.05$; $r = -0.25$). The third research question pertained to the level of correlation of the variables with academic performance of the college students across gender and race lines. The results of the scale correlations between motivation constructs, self regulation constructs and academic performance are presented in Table 2. The results of the regression analysis indicated that there are statistically significant differences in the level of performance of college students across gender and race lines. These results are presented in Table 3, Table 4, and Table 5.

DISCUSSION

This study examined the motivational systems theory (MST) and investigated the relationship between motivation, self-regulated learning, ability (prior skill) and the academic performance of college students enrolled in degree seeking business programs. With respect to the first research question concerning the relationship between the academic performance of college students and motivational strategies, the findings indicated that the motivational constructs, namely, intrinsic goal orientation ($r = 0.35$), extrinsic goal orientation ($r = 0.29$), task value (0.52), control of learning beliefs ($r = 0.33$) and self-efficacy ($r = 0.50$) were all positively and significantly ($r > 0.15$) related to academic performance. The results implied that the motivational components were directly linked to students' academic performance in the classroom. The strongest correlation coefficients for the motivational components were recorded for task value ($r = 0.52$) and self efficacy ($r = 0.50$). Each scale was individually examined with academic performance, so the correlations of task value and self-efficacy were independent of and did not interact with any of the other scales, therefore, negating the possibility of inter-correlation effect. The results indicated that, as pertained to the students' task value, they not only found the courses they studied interesting, but also understood the course content was very important and it was their intention to utilize the learned coursework. The results also indicate that the students' were confident that they had the necessary ability to accomplish and the necessary skills to perform the tasks. It may be implied that teaching students about different motivational strategies may prove to be more important for improving actual performance on classroom academic tasks (Schunk, 1985). Motivation strategies were positively related to academic performance in the classroom.

The first research question was also concerned with the relationship between the academic performance of college students and aptitude/ ability/prior skill. Aptitude, represented as a measure of the college students' high school grade point average (GPA), was positively and significantly related to academic performance. The magnitude of the correlation coefficient was a robust $r = 0.38$. This result implied that aptitude/ability/prior skills, as represented by the students' GPA, was a good predictor of academic performance of college students in business programs. These results paralleled the findings of prior educational research (Eskew & Faley, 1988; Felt et al, 1989; Doran et al, 1991; Carpenter et al, 1993; Gist et al, 1996; Hill, 1998 & Wooten, 1998). The relationship between the academic performance of college students and responsive environment components pertained to a) time and study environment ($r = 0.27$), b) effort regulation ($r = 0.27$), c) peer learning ($r = 0.36$) and d) help seek ($r = 0.23$). The results indicated the four scales were positively related to academic performance. Peer learning, that is, the collaboration and dialogue with peers to clarify course material and attain insights that were not visible in the classroom, attained the highest correlation with academic performance. Help seek, although significantly related, achieved the lowest correlation with academic performance in the group at 0.23 ($\text{sig}, r > 0.15$). It was evident that the student participants were more comfortable meeting with their peers to discuss coursework issues, than obtaining help, tutoring or individual assistance from instructors. The results strongly suggested that institutions of higher learning should ensure that the resources available for peer learning, tutoring or individual assistance from instructors should be in an environment that encourages student participation, rather than a place for slow and non-achievers. The results implied that responsive environment constructs were positively related to college students' academic performance.

The second research question addressed the relationship that existed between academic performance of college students and the biological component, as represented by the scale test anxiety. The results of prior research had indicated that test anxiety which was responsible for students 'second guessing' themselves and becoming anxious about test-taking. Test anxiety ($r = -0.26$) was significantly but negatively related to academic performance as related to classroom activity, such as exams and quizzes. High anxious students reported less self-regulation and

persistence (Hill & Wigfield, 1984). The negative relation between test anxiety and academic performance implied that test anxiety among students during examinations develops worry and concern about their capabilities that interferes with effective performance. The negative relationship between test anxiety and academic performance also implied that the constructs were inversely related.

The third research question related to differences that existed in the levels of performance of college students across gender and race lines. The findings clearly indicated that correlation among the constructs and performance existed in various magnitudes. It is apparent that as pertains to the gender of the students, female students level of performance were predicted to be higher than their male counterparts. Female students were also more impacted by test anxiety than their male counterparts. Among females students, the Caucasian female students were more impacted by test anxiety than African-American females. However, with male students the results were reversed. The African-American males were more impacted by test anxiety than their Caucasian counterparts. The roles were switched with the male students. The Caucasian males were less impacted by test anxiety than their African-American counterparts. The results indicated that Caucasian females made better use of their study time and exerted more effort in their studies than their African-American counterparts. However, the African-American students (males and females) utilized peer learning and help-seeking to greater advantage than their Caucasian counterparts. Prior skills were apparently more beneficial to the African-American students than their Caucasian counterparts. As relates to gender, the African-American and Caucasian females outperformed their male counterparts with motivation and responsive environment scales. The female students were more impacted by test anxiety than their male counterparts for both African-American and Caucasian students. The analysis clearly indicate that the relationship between academic performance and the demographic variables gender and race were statistically significant and that the differences in the levels of academic performance across gender and racial lines were also statistically significant.

CONCLUSION

The results of the study provided valid empirical evidence to support Martin Ford's Motivational Systems Theory which posits:

$$\text{Performance/Achievement} = \frac{(\text{Motivation} \times \text{Skill}) \times \text{Responsive Environment}}{\text{Biological Structure}}$$

The results, most importantly, provide evidence for the importance of considering both motivational and self-regulated learning components in the classroom in an effort to enhance the academic performance of college students. This model, if implemented properly would result in improved academic performance among college students pursuing degrees in business. As the classroom tasks and assignments become more interesting and manageable, and as their performance levels improve, college students will be more apt to complete their college careers. However, implementation of the motivational and learning strategies alone are inadequate. The students' learning environment is one of the most important factors in this model and a catalyst to success. College students need to have both the will and the skill to be successful in the classroom setting (Blumenfeld et al, 1992, Pintrich, 1989). The results adequately indicated that gender and race play a significant role in the levels of academic performance of college students. As a result, institutions of higher learning, at all levels of the educational process, need to integrate these components into their models for continued classroom success among college students.

Future Research

This study has been limited to two ethnic groups, namely, African-Americans, and Caucasians. As the United States is a conglomerate of many races and nationalities, future research could move to the next level and examine the levels of performance across gender and race lines for other groups, for example, Asian-American and Hispanic-American college students.

Table: 1															
Descriptive Statistics															
Sample Population				Race						Gender					
				AA			CA			Male			Female		
N=259				N=161			N=98			N=109			N=150		
	M	SD	α	M	SD	α	M	SD	α	M	SD	α	M	SD	α
Motivational Scales															
IGO	4.86	1.40	.73	4.77	1.36	.77	5.01	1.47	.67	5.07	1.35	.55	4.71	1.43	.80
EGO	5.48	1.36	.69	5.51	1.33	.70	5.44	1.43	.66	5.53	1.37	.67	5.45	1.36	.70
TV	5.41	1.29	.89	5.41	1.22	.91	5.41	1.40	.86	5.43	1.22	.86	5.39	1.34	.91
CLB	5.42	1.26	.71	5.33	1.27	.69	5.54	1.23	.73	5.52	1.21	.59	5.36	1.29	.77
SEP	5.67	1.10	.90	5.62	1.08	.93	5.65	1.13	.89	5.69	1.03	.88	5.59	1.16	.92
Biological Structure Scale															
TA	3.84	1.21	.74	3.99	1.66	.73	3.58	1.86	.73	4.03	1.81	.67	3.70	1.67	.78
Aptitude/Prior Skill Scale															
A/PS	3.25	0.61	.47	3.31	1.24	.74	3.16	0.92	.74	3.18	.040	.74	3.30	0.61	.74
B. Resource Management Scales.															
TSE	5.24	1.56	.75	5.20	1.46	.75	4.98	1.65	.76	5.06	1.52	.71	5.17	1.56	.78
ER	3.85	1.33	.64	5.24	1.30	.65	5.25	1.36	.66	5.13	1.35	.53	5.32	1.29	.72
PL	4.46	1.38	.70	4.03	1.53	.73	3.55	1.72	.67	3.74	1.61	.62	3.92	1.63	.75
HS	4.46	1.26	.57	4.51	1.46	.50	4.38	1.64	.56	4.35	1.53	.47	4.53	1.55	.61

Legend: M = Mean; SD = Standard Deviation; and α = alpha; AA = African-American; CA = Caucasian-American

Source: The data used in this analysis was the students' responses to the MSLQ questionnaire.

Table 2															
Correlation Levels of scales with Final Grade (r)															
Sample Population				Race						Gender					
				AA			CG			Male			Female		
				All	Male	Fem	All	Male	Fem	All	B	W	All	B	W
			r	r	r	r	r	r	r	r	r	r	r	r	r
			N=259	N=161	N=63	N=98	N=98	N=46	N=52	N=109	N=63	N=46	N=150	N=98	N=52
Motivational Scales															
Intrinsic Goal Orientation			.35	.39	.32	.44	.33	.10	.49	.20	.32	.10	.45	.44	.49
Extrinsic Goal Orient.			.29	.29	.28	.31	.28	.26	.29	.27	.28	.26	.30	.31	.29
Task Value			.52	.57	.53	.74	.48	.37	.56	.46	.53	.37	.57	.74	.56
Control Learning Beliefs			.33	.31	.20	.48	.37	.31	.42	.24	.20	.31	.39	.48	.42
Self-Efficacy			.50	.57	.51	.60	.46	.39	.52	.45	.51	.39	.56	.60	.52
Biological Scale															
Test Anxiety			-.26	-.26	-.24	-.28	-.28	-.17	-.37	-.22	-.24	-.17	-.32	-.28	-.37
Aptitude Scale															
Aptitude/Prior Skill			.38	.45	.40	.49	.27	.35	.18	.22	.40	.35	.37	.49	.18
Responsive Environment Scales															
Time Study Environ			.27	.28	.26	.29	.27	.20	.34	.23	.26	.20	.30	.29	.34
Effort Regulation			.27	.26	.22	.32	.30	.22	.40	.21	.22	.22	.34	.32	.40
Peer Learning			.36	.40	.29	.48	.31	.25	.36	.27	.29	.25	.42	.48	.36
Help Seek			.23	.12	.21	.24	.12	.19	.21	.14	.21	.19	.22	.24	.21
Source: Compiled by the author from data retrieved from the students' responses to questions on the MSLQ.															
Correlations are significant at $r > 0.15$; $p < 0.05$.															

Table: 3							
Analysis of Variance (ANOVA)							
	Sample Size	Sum Of Squares	Degree of Freedom	Mean Square	R ²	F	Sig.
General Sample All races & Genders	N=259	73.37	51	1.44	0.48	3.70	.000
African-Americans	N=161	54.48	51	1.09	0.55	2.68	.000
Caucasians	N=98	38.97	51	0.76	0.68	1.92	.013
Females – All	N=150	54.41	51	1.07	0.59	2.76	.122
Females: African-American	N=98	43.54	51	0.85	0.75	2.73	.000
Females: Caucasians	N=52	31.00	51	0.67	0.92	1.00	.000
Males – All	N=109	46.47	51	0.91	0.73	3.06	.000
Males: African-American	N=63	36.14	51	0.71	0.88	1.61	.198
Males: Caucasians	N=46	21.83	51	0.53	0.97	3.40	.120
a. Independent Variables: IGO, EGO, TV, CLB, SEP, TA, A/PS, RE, EL, ORG, CT, SR, TSE, ER, PL, and HS							
b. Dependent Variable: Final Course Grade							
Source: The data used for the regression analysis was the sample students' responses collected with the Survey Instrument MSLQ.							

Table: 4			
Multivariate Analysis of Variance (MANOVA)			
Model	Wilks' Lambda	F	Significance
1	.836	4.55	.002
a. Independent Variables: Final Course Grade			
b. Dependent Variable: Gender: Male, Female; and Race: African-American, Caucasian			
Source: The data used for the regression analysis was the sample students' responses collected with the Survey Instrument MSLQ.			

Table: 5				
Mean Level Analysis				
	African-American	Comparison Group	Males	Females
Motivation Scales	5.33	5.41	5.45	5.30
Biological Structure Scale	3.99	3.58	4.03	3.70
Aptitude/Prior Skill Scale	3.31	3.16	3.18	3.30
Responsive Environment Scales	4.75	4.54	4.57	4.74
Source: The data used for the regression analysis was the sample students' responses collected with the Survey Instrument MSLQ.				

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