Factors associated with student performance in an investments course: An empirical study

Keshav Gupta
Kutztown University of Pennsylvania

Mostafa M. Maksy
Kutztown University of Pennsylvania

ABSTRACT

Using several statistical tests (including one-way ANOAVA, Pearson and Spearman correlations, and OLS regression analysis) this paper examines some determinants of student performance in an undergraduate Investments course. Of the three motivation factors studied (the grade the student would like to make in the course, intention to take the Chartered Financial Analyst or the Certified Financial Planner examination, and intention to attend graduate school) only the first has strong relationship with student performance. Of the effort factors (course study hours, overall study hours, homework, class attendance, and class participation) only course study hours, homework, and attendance have positive explanatory power for student performance. None of the three distraction factors studied (job hours, job type, and credit hours load for the semester) has any significant effect on student performance. Both prior ability factors studied (overall GPA and the grade in a pre-requisite financial management course) have significant relationship with student performance. Finally, of the four self-perceived ability factors used in the study (writing, math, reading, and listening) only the math ability has positive relationship with student performance.

Keywords: Motivation, Effort, Distraction, Prior ability, Student performance, Investments.

INTRODUCTION

A review of prior research below indicates, very few studies have investigated the impact of motivation and effort on a required Financial Management course. No studies were identified in this study that looked at determinants of success in an Investments course which is required for most finance majors and taken by many non-finance majors as an elective. This study investigates the associations between selected motivation, effort, distraction, and prior ability factors and student performance in the undergraduate Investments course.

The grade the students would like to make in the course, intention to take the Chartered Financial Analyst (CFA) or the Certified Financial Planner (CFP) examination, and intention to attend graduate school were used as proxies for motivation. The number of weekly study hours for the course, homework grade, class attendance, and class participation grade were used as proxies for effort. The number of hours of work per week, and the number of credit hours taken per semester were used as proxies for distraction.

Students' prior ability is measured by the actual grade earned in the Financial Management course which is a pre-requisite for the Investment course, overall Grade Point Average (OGPA), and self-reported math ability and combined writing, reading and listening abilities. The dependent variable, the student performance, is measured three different ways; by the letter grade for the course, percent score for the course and by the percent score in tests given in class.

One of the motivations of this study is predicated on the belief that identifying effort factors that help students to perform well and factors that distract them from performing well may help us emphasize the effort factors and discourage the distraction factors. Another purpose of the study is to provide empirical support to the intuitive notion that motivation does indeed lead to better student performance. Also the study could help us determine whether students' self-assessment of their own writing, math, reading, and listening abilities affect their performance in the course.

REVIEW OF PRIOR RESEARCH

Prior studies have explored various factors (e.g., general academic performance, aptitude, prior exposure to mathematics, prior exposure to accounting, gender, age, motivation, effort, and other intervening variables) that are associated with student performance in college-level courses. The overall Grade Point Average (OGPA) is used frequently as a proxy for prior academic performance and aptitude.

In the finance area, Paulsen and Gentry (1995), Chan, Shum, and Wright (1997), Sen, Joyce, Farrel, and Toutant (1997), Didia and Hasnat (1998), Marks (1998), Van Ness, Van Ness, and Adkins (2000), Johnson, Joyce, and Sen (2002), Biktimirov and Klassen (2008), find OGPA to be a strong predictor of grade in the Financial Management course that is required of all business majors. Several researchers, using data from various U.S. colleges, find evidence supporting OGPA as a significant predictor of performance in accounting courses (Eckel and Johnson 1983; Hicks and Richardson 1984; Ingram and Peterson 1987; Eskew and Faley 1988; Doran, Bouillon, and Smith 1991). Wooten (1998) finds that aptitude, as measured by the Scholastic Aptitude Test (SAT) score, and grade history are significant variables in influencing performance of students in an introductory accounting course. U.S. research findings "are supported in Australia by Jackling and Anderson (1998) and in Scotland by Duff (2004). In Wales, Lane and Porch (2002) find that, performance in introductory accounting can partially be explained by reference to factors in the students' pre-university background. However, these factors are not significant when the student progresses to upper level accounting classes. In

addition, using another measure, pre-university examination performance, Gist, Goedde, and Ward (1996) find no significant association between academic performance and performance in accounting courses at the university level. Finance and accounting are subject areas that require accumulation of prior knowledge and quantitative skills. Thus, several studies have investigated the impact of prior exposure to mathematics and accounting on performance in college finance and accounting courses" (Masky, et al, 2013)..

With regard to Financial Management courses, the evidence is mixed. While Chan, Shum and Wright (1997) show that self-reported quantitative skills have insignificant impact on students' course score, Grover, Heck and Heck (2010) report significant explanatory power for pre-test math, accounting and economics scores. Didia and Hasnat (1998) find mixed results with math grade being significant predictor of course grade for OLS model but not for the ordered-probit model. However, they find strong evidence, using both OLS and ordered-probit estimates, that grades in accounting and economics pre-requisite courses have predictive value for the Financial Management course. Sen, Joyce, Farrell and Toutant (1997) also find positive relationship between completion of pre-requisites and performance in the Financial Management course.

Financial management pre-requisites almost always include two accounting courses. In the accounting area, "the results are also inconclusive. On one hand, some studies (for example, Baldwin and Howe 1982; Bergin 1983; and Schroeder 1986) find that performance is not significantly associated with prior exposure to high school accounting education. On the other hand, some later studies (for example, Eskew and Faley 1988; Bartlett et al 1993; Gul and Fong 1993; Tho 1994; Rohde and Kavanagh 1996) find that prior accounting knowledge, obtained through high school education, is a significant determinant of performance in college-level accounting courses. There is also some ambiguity with regard to the influence of mathematical background on performance in accounting courses. For example, Eskew and Faley (1988) and Gul and Fong (1993) suggest that students with strong mathematical backgrounds outperform students with weaker mathematical backgrounds. On the other hand, Gist et al (1996) do not report the same results. Furthermore, Guney (2009) suggests that grades in secondary education mathematics are a very strong determinant of performance in accounting but only for non-accounting majors" (Masky, et al, 2013).

Prior studies about the influence of motivation and effort on student performance also report conflicting results. For example, Pascarella and Terenzini (1991), report that motivation and effort, among other factors, significantly influence students' performance in college. Wooten (1998) finds that motivation significantly affects effort which in turn significantly affects performance in an introductory accounting course. Maksy and Zheng (2008) use "the grade the student would like to earn" as a proxy for motivation and find it to be significantly associated with the student's performance in advanced accounting and auditing courses. Paulsen and Gentry (1995), using a survey instrument, report that students' academic performance in a large introductory Financial Management course was significantly related to several motivational variables such as intrinsic and extrinsic goal orientations and task value, and learning strategy variables, including time, study, and effort. Johnson, Joyce and Sen (2002) utilize computerized quizzes and analyze the effect of objectively measured effort on student performance in Financial Management course. They show that, after controlling for aptitude, ability, and gender, effort as measured by attempts and log time, remains significant in explaining the differences in performance. Rich (2006), uses students' homework preparedness and unpreparedness in class as a proxy of effort and non-effort. He finds significant positive relationship for the former and negative relationship for the latter with exam percent. Biktimirov and Klassen (2008) find weak association between hits to course management system and grade in finance course. However, using self-reported data, Didia and Hasnat (1998) present very week counter-intuitive evidence

for one of the two OLS models but not for the ordered-probit models that the more time spent studying per week the lower the grade in the introductory finance course. However, they did not control for GPA. Also, using self-reported data, Nofsinger and Petry (1999) find no significant relationship between effort and performance in a Principles of Finance course.

In recent years, there has been increased interest in studying the influence of intervening variables on student performance. Paulsen and Gentry (1995), using a survey instrument, find that academic performance in a large introductory financial management class is significantly related to control over learning, test anxiety, self-efficacy, elaboration, organization and metacognition. Wooten (1998) finds no significant relationship between work, family, and extra-curricular conflicts and students' performance in an introduction to accounting course. Chan, Shum, and Wright (1997) find no significant relationship between performance in a financial management course and attendance, credit hours enrolled, and number of weekly work hours. In a similar vein, Van Ness et al (2000) find no relationship between students' full time or part time status and grades in a Principles of Finance class. However, they find that students who are enrolled in internet class are more likely not to complete the course. This appears to be contrary to Paulsen and Gentry finding because the internet course is designed to give students more control over their learning in terms of very flexible deadline for assignments and one full year to complete the course,. Didia and Hasnat (1998) find strong positive relationship between number of credit hours enrolled in the semester and course grades. This result may seem to be counter intuitive; however, some research, including this study, shows that students with higher GPAs take more credit hours. Rich (2006) reports significant negative relationship between class absences and being late to the class, and exam percent. In the accounting area, Wooten (1998) does not find significant relationship between course performance and work, family, and extracurricular conflicts. "Paisey and Paisey (2004) and Guney (2009) show there is a clear positive relationship between attendance and academic performance. Paisey and Paisey also report that the most frequently cited reason for not attending classes was students' participation in part-time employment. Similarly, Lynn and Robinson-Backmon (2005) find a significant adverse association between employment status and learning outcomes. These authors also indicate that a student's self-assessment of course learning objectives is significantly and directly related to grade performance. In contrast, Maksy and Zheng (2008) find no significant negative association between the number of hours of work per week and student performance in advanced accounting and auditing courses" (Masky, et al, 2013).

However, their study was strictly conducted in a commuter school where 80% of the students worked full time. "Schleifer and Dull (2009) address metacognition in students and find a strong link between metacognitive attributes and academic performance. Metacognition is frequently described as "thinking about thinking" and includes knowledge about when and how to use particular strategies for learning or for problem solving" (Masky, et al, 2013).

Age and gender are two demographic variables that receive less attention than those factors discussed above, but the results are still inconclusive. Chan, Shum, and Wright (1997), Didia and Hasnat (1998), and Van Ness et al. (2000) find no significant relationship between grade in an introductory finance course and gender or age of students. Henebry and Diamond (1998) and Johnson et al. (2002) also do not find any significant relationship between a finance principles course score and gender of students. However, Henebry and Diamond show that both male and female students earn significantly higher grades in courses taught by female instructors. This difference was not attributable to adjunct, tenure track, or tenured status of instructors. Sen et al. (1997), on the other hand, show that female student performed worse than male students in principles of finance courses at two different mid-western universities. In the field of accounting, Bartlett et al (1993) and Kohl and Kohl (1999) suggest that younger students have better performance, particularly at the senior university level. However, Jenkins (1998) and Lane

and Porch (2002) conclude that age is not a significant determinant of performance in auditing and management accounting courses. The studies related to gender also produce conflicting results. Some studies indicate that male students perform better than female ones, but the results are either insignificant (for example, Lipe 1989) or only hold true for introductory courses (Doran, Bouillon and Smith 1991). To the contrary, Mutchler et al (1987) find that female students score significantly higher than male students. Furthermore, Gracia and Jenkins (2003) find that there is a significant difference in the performance in favor of female students over male students in Wales. In contrast, other studies find no significant differences in performance between male and female accounting students. For example, Tyson (1989) and Buckless et al (1991) demonstrate that gender effect disappears after controlling for general academic ability. Similarly, Gammie et al (2003) find very little indication of performance differential between males and females throughout the degree program.

It is also possible that other intervening variables, besides the demographic variables, may affect student performance in accounting courses in college. "Bartlett et al (1993) conclude that very few of the educational, demographic or financial characteristics variables appear to have a significant influence on student performance in university accounting examinations. Gracia and Jenkins (2003) observe that students who actively demonstrate commitment and self-responsibility towards their studies tend to do well in formal assessments. Accordingly, they agree with Bartlett et al (1993) that intervening variables, rather than demographic variables, may be important determinants of student performance in university accounting examinations. They are also in agreement with Lane and Porch (2002) who suggest that other important factors like student motivation may explain student performance" (Masky, et al, 2013).

There is very limited, almost non-existent, literature on student performance in upper level finance classes. Dolvin and Pyles (2011) find that trading simulation performance in an investments class has no significant impact on knowledge level and interest in the discipline or the investment profession. Huffman (2011) finds that the real estate major status is associated with higher grade performance in an advanced real-estate course.

Conflicting results are also observed about the association between student performance in introductory accounting and their performance in non-introductory accounting courses. For example, Canlar (1986) finds evidence that college-level exposure to accounting is positively related to student performance in the first MBA-level financial accounting course. Additionally, Tickell and Smyrnios (2005) find that the best predictor of academic performance in any one year is the performance in the same discipline in the previous year. Doran et al (1991) report very surprising and counterintuitive result that performance in the introductory accounting course has a negative impact on performance in subsequent accounting courses.

> Maksy and Zheng (2008) find that the grade in intermediate accounting II is a strong predictor of student performance in advanced accounting and auditing courses. Research has been largely inconclusive or replete with conflicting results. The purpose of this study is to provide more insight on those areas in which there was some general agreement. Since motivation and effort has generally been positively associated with student performance affect student performance. The study also looks at several factors which are commonly viewed as possibly distracting students from performing well and test whether they indeed are negatively affecting student performance. Moreover, the study investigates the impact of two specific measures of prior abilities on student performance, and also use them as control variables while testing for the association between motivation and distraction factors and student performance in the Investments course (Maksy & Zheng, 2008)

STUDY OBJECTIVES

The *first objective* of this paper is to study the relationship between three selected motivation factors (the grade the student would like to make in the course, the student's intention to take the CFA or the CFP examination, and the student's intention to attend graduate school), and the student's performance in the Investments course at a public residential school.

The *second objective* is to study the relationship between four variables representing "effort" and student performance. If the students are really motivated, they should spend more time studying for the course, do well in homework assignments, attend all classes, and participate in class discussions. The study investigates the possible associations between these effort variables and motivation factors.

The *third objective* is to study the relationship between three distraction factors (the student's number of working hours per week during the semester, the student's credit hours taken in the semester, and the student's job type, i.e., whether it is finance, accounting, or business related or not) and the student's performance in the Investments course. Intuitively, the higher the number of work hours per week, the less time the student will have to study for the Investments course resulting in lower course grade. Furthermore, it is likely that the performance of a student taking higher number of credit hours will be affected negatively because the student may not be able to devote sufficient number of hours of study to the course. Additionally, if the student's job is not related to finance, accounting, or business in general, the student's grade in the Investments course will be lower than if the student's job is related to one of these areas. In light of the prior discussion, it is hypothesized that if the student's number of work hours per week is higher, and/or the number of credits taken in the semester is higher, and/or the student's job is not related to finance, accounting, or business in general, there will be a significant *negative* impact between these distraction factors and the student's performance in the Investments course. Of course, distraction factors may offset each other thereby cancelling out any single factor's effect. For example, a student who works higher number of hours per week may take fewer courses or fewer credit hours, and vice versa, so that there is no negative effect on performance. For this reason, the study tests the effect of each distraction factor on student performance while controlling for the other two factors. The association between the distraction factors among themselves and with the four effort factors is also investigated.

The *fourth objective* is to study the relationship between students' performance in the Investments course and their grade in the financial management course (which is pre-requisite for the course), their overall GPA, their self-reported ability in math, and in writing, reading, and listening combined. A positive relationship between self-reported abilities and performance may indicate that students make reasonably accurate assessment of their abilities. A lack of relationship between certain abilities and performance could be due to the possibility that those abilities are not relevant to the performance in the course or to students' inaccurate assessment of their abilities. Before the students filled out the questionnaires, they were instructed to be as honest as possible in their answers so students who plan to take this course in the future would benefit from the results of this research. It is assumed that the students followed these instructions and, thus, positive associations between students' self-perceived abilities and their performance in the Investments course are expected.

To compare this study with previous studies, whether performance in the Investments course differs between gender and age groups.is also investigated.

STUDY VARIABLES

The authors initially used only the letter grade in the course (A=4, B=3, etc.) as the student performance dependent variable. However, they quickly realized that the letter grade treats a student earning the lowest end of the grade range as having the same exact performance as that of a student earning the highest end of the grade range. For example, a student with a total percentage points of 80 and another with a total percentage points of 89 would be considered having equal performance since both students receive a B for the course, even though the first student is one percentage point away from a C grade and the other student is one percentage point away from an A grade (Plus/minus grading was not available). As a result, it was also decided to use overall points percentage earned by a student in the course as a dependent variable. Overall points percent score is a weighted score of scores in three tests (78%), homework (17%) and class participation (5%). Because homework and class participation scores are used as independent variables, the percentage points the student earned in in-class tests is also used as a third dependent variable to define student performance. This way, the study is able to determine whether homework and class participation scores truly have any positive effects on student performance.

In addition to the three dependent variables above, 13 independent variables are used for the regression analysis. The study also uses eight different classification variables for differences in means test, 16 different variables for one-way analysis of variance, and 25 different variables for calculating Pearson and Spearman's correlation coefficients. A list of these variables is presented below starting with the abbreviation used for each variable in the statistical models and ending with a definition or an explanation of the variable. The study also explains why some variables are combined and why some variables were not used in the analysis. The possible responses for each question (on the survey instrument) representing an independent variable are listed in brackets
"[ ]".

***Dependent Variables**:*

1. *Letter Grade:* The letter grade: A, B, C, D, and F the student earned for the course are converted to 4, 3, 2, 1, and 0 points respectively.

2. *Overall Points in %:* The total number of percentage points calculated by giving 78% weight to three tests, 17% weight to homework based on online homework done on Connect by McGraw-Hill and extra credit quizzes related to current financial news in *The Wall Street Journal* done on Desire 2 Learn (D2L), and 5% weight to students' class participation.

3. *In-Class Test Score in %:* Percentage points the student earned in three tests given in class. The tests are non-cumulative with 40% weight to two problems and 60% weight to 30 multiple choice questions and up to 10% extra credit for multiple choice questions based on *The Wall Street Journal* quizzes.

***Independent Variables**:*

1. *GradeMake:* The grade I would like to make in the course is [a. an A; b. at least a B c. at least a C; d. a D is fine with me]. For analysis purpose, it is assumed that A= 4, B = 3, C=2, and D=1.

2. *CFA/CFP:* Are you planning to take the Chartered Financial Analyst (CFA) or Certified Financial Planner (CFP) exam? [a. Yes; b. No; c. Maybe]. For analysis purpose, it is assumed that Yes =1, No = 0, Maybe = 0. "No" and "Maybe" were combined into one category because there were only two Nos. The study also converted what would have been ordinal data into a dummy variable for the regression analysis purpose.

3. *GradSch:* Are you planning to attend graduate school? [a. Yes, at this school; b. Yes, but at another school; c. No; d. Maybe]. For analysis purpose, "Yes at this school," frequency 2, with "Yes, but at another school," frequency 15, were combined and coded as1. "No," frequency 2, and "Maybe," frequency 20, were combined and coded as 0. It should be noted that the course instructor often discourages students from going to graduate school right after finishing the undergraduate degree. He also discourages students from going to graduate school at their current university so that they can get more diverse educational experience.

4. *CHours:* In an average week, how many hours do you study for this course? [____hours].

5. *Shours*: In an average week, how many hours do you study overall? [____hours]. It was found that *SHours* had 0.794 correlation with *CHours* at 0.000 level of significance. Thus, Shours was not used in the regression analysis to avoid the multicollinearity problem. However, high correlation tends to validate the self-reported CHours by the students.

6. *HomeWork:* Percentage points earned by a student in online homework assignments on McGraw-Hill Connect©.

7. *Attendance:* Percentage of class attendance.

8. *ClParticip:* Percentage points earned by the student for class participation. It was found that *CPartcip* had 0.836 correlation with *CAttend* at 0.000 level of significance. Thus, *CPartcip* was not used in the regression analysis to avoid the multicollinearity problem.

9. *JobHours:* In an average week, how many hours do you work at a job outside of school? [____ hours].

10. *JobType:* My job outside of school is [a. Finance related; b. Accounting related; c. Business related (but not finance or accounting); d. Other]. The first three categories were combined and coded as 1 and the "other" was coded as 0. While this variable was not used in the regression analysis, because 7 out of 39 values were missing, it was included in the one-way ANOVA and the correlation tests.

11. *CLoad:* How many courses are you taking this semester? [____ courses]. The number of courses reported by the students was verified with data provided by the University Institutional Research Office (IRO). While student reported numbers were quite accurate, the data provided by the University IRO was used in the analysis. *CLoad* was not included in the regression analysis to avoid the multicollinearity problem with CrdLoad below.

12. *CrdLoad*: How many credit hours are you taking this semester? [____ credit hours]. The number of credit hours was verified with data provided by the University IRO. While student reported numbers were quite accurate, the data provided by the University IRO were used. *CLoad* had 0.978 correlation with *CrdLoad* at 0.000 level of significance. Thus, CLoad was not used in the regression analysis to avoid the multicollinearity problem with CrdLoad.

13. *Write:* My writing ability is [a. Very good; b. Good; c. Average; d. Poor]. For this variable and the three variables below, the codes used were 4 for Very Good to 1 for Poor. Also, the order of very good to poor on the survey instrument was scrambled to diminish the possibility of students marking off the same letter in all four variables. Moreover, math was put in the middle to reduce the possibility of students marking writing, reading, and listening abilities the same.

14. *Math:* My math ability is [a. Poor; b. Average; c. Good; d. Very Good].

15. *Read:* My reading ability is [a. Poor; b. Average; c. Good; d. Very Good].

16. *Listen:* My listening ability is [a. Very good; b.Good; c. Average; d. Poor].

17. *AvWRL:* Due to high (0.41 to 0.62) and significant (0.01 or better) correlation between Write, Read, and Listen the average of the three variables was calculated and named it *AvWRL*. This new variable is highly correlated with each of the three variables (0.80 to 0.86 with statistical significance of 0.01 or better). It serves as useful proxy for the three variables and eliminates the multicollinearity problem.

18. *FIN350:* What was your grade for FIN 350 (Financial Management)? [__ A; ___ B; ____C; ___D]. The grades were verified with data provided by the University IRO. While student reported numbers were quite accurate, the data provided by the University IRO was used. As discussed above, grade points of 4, 3, 2, 1 for A, B, C, and D respectively were used.

19. *OGPA:* What is your Overall GPA? [___]. Overall GPAs were verified with data provided by the University IRO. While student reported numbers were quite accurate, the data provided by the University IRO was used.

20. *PMajor*: My primary major is [a. Accounting; b. Finance; c. Marketing; d. Management; e. Other] Since 33 out of 39 students indicated finance as their primary major, Finance was coded as 1 and all other majors were coded as 0.

21. *Gender*: Your gender [a. Male; b. Female]. Male was coded as 1 and Female as 0.

22. *Age*: Your age group [a. 18-22; b. 23-27; c. 27+]. Since 32 out of 39 students were in the 18-22 age group, this age group was coded 0 and the remaining two groups as 1.

Categorization of Independent Variables

Variables 1, 2, and 3 are classified as motivation factors; variables 4, 6, 7, and 8, as effort factors; variables 9, 10, and 12 as distraction factors; and variables 14 and 17 as self-perceived ability factors. Variables 18 and 19 represent prior actual ability and are included for control purposes and also to determine whether they are associated with student performance. Finally variables 20, 21, and 22 are included to compare the results of this study with earlier studies using those variables.

STUDY HYPOTHESES

The study tests one hypothesis for each independent variable, for a total of 14 hypotheses. To prevent redundancy, all hypotheses are presented in the alternate form only. The formal statements for these hypotheses are provided below grouped under broad categories of factors:

Motivation Factors

Independent variable number one is GradeMake**.** It is hypothesized that students who would like to make higher grades are motivated to perform well and do perform well in the course:

H_1: *There is a significant positive relationship between the grade the student would like to make in the Investments course and student performance in that course.*

Independent variable number two is whether the student intends to take the CFA or the CFP exam. It is hypothesized that students who intend to take either of these exams are more motivated to work hard to learn the material (to increase their chances of passing those exams) and this leads them to earning higher grade in the course.

***H_2**: There is a significant positive relationship between the student's intention to take the CFA or the CFP Exam and student performance in the Investments course.*

Independent variable number three under the motivation category is whether the student intends to attend graduate school. It is hypothesized that students who have that intention are more motivated to study hard to increase their chances of getting accepted at a good graduate school, thus they end up earning higher grade in the course.

***H_3**: There is a significant positive relationship between the student's intention to attend graduate school and student performance in the Investments course.*

Effort Factors

A student who is motivated (because of any or all of the three motivation factors discussed above) to earn a higher grade in the Investments course will spend more hours per week to study for the course, perform well in all assigned homework, attend all classes, and participate in class discussions. Thus, the next four hypotheses state that there are significant relationships between these four effort variables and student performance. Because homework and class participation scores are used in determining the letter grade for the course and included in the overall points percentage for the semester, it is mathematically expected that there will be significant relationship between homework and class participation grades and students' letter grade point and overall points percentage score. The third dependent variable, in-class tests score, does not include homework and class participation grades, and avoids this problem. The formal hypotheses are stated below:

***H_4**: There is a significant positive relationship between the number of study hours for the Investments course and student performance in that course.*

***H_5**: There is a significant positive relationship between the student's homework score and student performance in the Investments course.*

***H_6**: There is a significant positive relationship between the student's class attendance and student performance in the Investments course.*

***H_7**: There is a significant positive relationship between the student's class participation grade and student performance in the Investments course.*

Distraction Factors

Independent variable number nine of the study is the average number of hours per week the student works at a job outside of school. It is hypothesized that students who work more hours may spend less time studying and doing homework and may attend fewer classes. As a result they may earn lower grades than students who work fewer hours or those who do not work at all.

***H_8**: There is a significant negative relationship between the student's average number of hours of work per week and student performance in the Investments course.*

Independent variable number 10 is the student's job type. It is hypothesized that students whose job is not related to finance, accounting, or business in general will earn lower grades in the Investments course than students whose job is related to one of these areas. This is based on the assumption that the practical experience gained from the job will help students understand the course material better and thus earn high test scores.

***H_9**: There is a significant negative relationship between the student's job type (if it is not related to finance, accounting, or business in general) and student performance in the Investments course.*

Independent variable number 12 is the number of semester credit hours a student is taking. It is hypothesized that students who are taking more credit hours may spend less time studying per course and, therefore, will earn lower grades than students who take fewer credit hours.

***H_{10}**: There is a significant negative relationship between the number of semester credit hours a student is taking and that student's performance in the Investments course.*

Self-Perceived Ability Factors

Independent variable number 14 represents students' self-perceived math ability and independent variable number 17 represents the average of writing, reading, and listening abilities combined. It is hypothesized that students who perceive their abilities to be higher in these areas earn higher grades in the Investments course. If students make accurate estimates of their abilities in these areas and if these abilities affect the performance in the Investments course, there should be significant positive relationship between these estimates and student performance. The hypotheses are stated as follows:

> ***H_{11}:*** *There is a significant positive relationship between the student's self-reported math ability and student performance in the Investments course.*
> ***H_{12}:*** *There is a significant positive relationship between the student's self-reported writing, reading, and listening abilities combined and student performance in the Investments course.*

Prior Ability Factors

Independent variable number 18 of the study is the student's grade in FIN350 (Financial Management). It is hypothesized that students who earned higher grades in FIN350, which is a prerequisite for the Investments course, will earn higher grades in the latter course.

> ***H_{13}:*** *There is a significant positive relationship between the grade the student earned in the Financial Management course and student performance in the Investments course.*

Independent variable number 19 of the study is the student's overall GPA (OGPA). Most prior research shows significant relationship between GPA and student performance. It is believed this will be the case in this study as well. So, It is hypothesized that students with higher overall GPAs will earn higher grades in the Investments course.

> ***H_{14}:*** *There is a significant positive relationship between the student's overall GPA and student performance in the Investments course.*

RESEARCH METHODOLOGY

Survey Instrument:

The authors modified a list of survey questions, from Ingram et al. (2002), to include, besides the study variables, some demographic and other information. For ethical, confidentiality, and potential risk issues pertaining to participants, the authors had to submit a comprehensive 10-page application (together with a copy of the survey instrument) to the University's Institutional Review Board (IRB) for approval. Prior to that, both authors had to take the National Institute of Health (NIH)'s training course titled "Protecting Human Research Participants," and pass the test given at the end of the course. The certificates of completion of the course were required to be submitted with the application to the University's IRB. The University's IRB made only one modification to the survey instrument by adding the statement that "participation in the survey is completely voluntary."

Study Sample:

In fall 2010, the data on the survey instrument were collected from 41 of 51students enrolled in the two sections of the undergraduate Investments course offered at a public residential school. Only two sections of the Investments course were offered and both sections were taught by the same instructor, so instructor effect is not an issue in this study. The university enrolls about 10,000 students, and the College of Business enrolls about 1,600 students. It is a state-owned university that has public access as a major part of its mission statement. It is located near some of the largest cities in the United States. It is one and a half hour drive from Philadelphia and two-hour drive from New York City. The final sample included 39 useful responses as one student dropped the course after filling out the questionnaire. Another student's response was dropped from the sample because there was some doubt about the truthfulness of the response. The student's performance in the course was very poor despite very high reported hours of study. While it is possible that academically poor students may spend more hours studying and still earn lower grades, the gap was so wide in this case that it was felt that the observation was an outlier and may affect the mean for tis variable and possibly other variables as well. The instructor teaching the course provided us (using only students' ID numbers for confidentiality purposes) with the data representing the three dependent variables (the "letter grade," "overall points," and "in-class tests scores") and three independent variables (homework, class participation, and attendance percentage points.)

Table 1 presents descriptive statistics of the sample variables. Two different graduate students entered the data from student questionnaire on two separate Excel spreadsheets. The authors matched the two spread sheets and resolved any discrepancy by referring to original questionnaire. This virtually eliminated any data entry errors. The students' provided data related to the number of semester courses, semester credit hours, FIN350 grade, and overall GPA were verified with official data (again using only students' ID numbers for confidentiality purposes) supplied by university's IRO. Students' self-reported data were quite accurate. This provided great confidence that non-verifiable data provided by the students should be accurate as well.

***Data Analysis*:**

To test the formulated hypotheses, one-way analysis of variance (ANOVA), Pearson and Spearman's correlation coefficients and ordinary least square regression analysis were used.

STUDY RESULTS

Table 1 presents the minimum and maximum value, the mean, and the standard deviation for each of the 19 non-binary variables of the study. That Table shows an average grade in the course of only 2.31versus 3.21 in the Financial Management course which is a pre-requisite for the course. It is also much lower than overall GPA of 3.11, and average Grade Make of 3.56. In comparison, Didia and Hasnat (1998) study of performance determinants in a finance course report a Financial Management course GPA of only 1.85, GPA in a pre-requisite course of 2.71, and overall GPA of 2.61. It is interesting to note that the difference between average course letter grade and pre-requisite course(s) GPA of 0.90 is comparable to that of Didia and Hasnet of 0.86. Also, the difference between average course letter grade and overall GPA of 0.80 is comparable to that of Didia and Hasnet of 0.76. No comparable data is available for the difference between average actual grade point in the course and average Grade Make points.

Students' self-reported average study time for the course is 3.01 hours per week which is only one-half the 6 hours per week recommended by the instructor both verbally and in the syllabus. In comparison, Didia and Hasnet (1998) report 3.91 hours per week of study time for

financial management classes they studied. Students' self-reported average total study time for all courses is only 11.79 hours per week compared to the suggested 30.82 hours per week based on average of 15.41 semester credit hours course load and the recommended two hours per semester credit hour study time. This is even lower than the average Business Majors study time of 13.14 hours for 2004 reported by Babcock and Marks (2011). If the average reported total study hours of 11.79 per week and is added to the job hours of 16.19 per week the total would be 27.98 hours, which comes very close to the recommended study hours of 30.82 per week. Babcock and Marks (2011) show decline in studying hours by non-working students also. However, if instructors lower the course rigor to meet the needs of the majority of working students, non-working students will not find it necessary to study more to achieve their academic objective of achieving higher grade. It appears that students' need to work is cutting into their recommended study hours.

Table 2 presents differences in means tests for selected variables. Table 2 shows male to female ratio in the class of 69% to 31% with males earning an average of 0.33 higher letter grade points, 2.3 higher overall points score, and 3.3 higher in-class tests score percentage. The differences are statistically insignificant. The OLS regression (which is not shown here) also has positive but insignificant coefficient for the males over females. Didia and Hasnet (1998) on the other hand find negative but insignificant coefficient for males. Two other studies find the role of gender in the finance course performance to be statistically significant, however they show opposite results. Sen et al. (1997) show significant negative coefficient for females, while Henebry and Diamond (1998) show significant positive difference in grade for females.

With regard to age, Table 2 shows that 18% of the students were above the age of 22 years earning an average of 0.55 lower letter grade points, 5.2 lower overall points percentage, and 2.4 lower in-class tests score percentage. All the results are statistically insignificant. This is opposite of Didia and Hasnet (1998) which finds positive and significant coefficient for the actual age variable in the OLS regression.

Table 2 also shows that 85% of the students taking the Investments course were finance majors and averaged 0.95 higher letter grade points, 9.3 percentage higher overall points score, and 10.6 percentage point higher in-class tests score than other majors. Letter grade points and in-class test score differences were significant at the .10 level of significance.

We now analyze the results of the study by the type of factors investigated (motivation, effort, distraction, self-perceived abilities, and prior ability).

Motivation Factors Associated with Student Performance:

Of the three motivation variables discussed in H_1 to H_3, GradeMake is significantly associated with student performance (however defined) based on One-Way ANOVA, and Pearson and Spearman's Correlation Coefficients at .01 level of significance (Tables 3 and 4). Table 5 shows that after controlling for prior ability, as measured by OGPA and FIN 350, GradeMake is still correlated with overall points and in-class tests score at the .01 level of significance but at only the .05 level of significance with letter grade. Table 6 shows two different models of OLS regression for each of the three dependent variables. Model 1 is a full model that includes all the independent variables and Model 2 excludes Homework and Class Participation because they are included in the calculation of the letter Grade and overall total points. Again, Grade Make is significant at the .01 level for Model 2, the better model, for all three measures of performance. These results are consistent with Paulsen and Gentry (1995), Wooten (1998), Maksy and Zeng (2008) and others.

Intention to take the CFA or the CFP exam (CFA/CFP) is significantly associated (but only at the .10 level of significance) with student performance as measured by overall points

score according to ANOVA (Table 3) and as measured by the overall points score or in-class tests score according to Pearson and Spearman correlations (Table 4). However, the correlation coefficients become insignificant when the prior ability factors are controlled for as shown in Table 5. Also, using the OLS regression, CFA/CFP is found to be not significantly associated with any of the three performance measures under the two models shown in Table 6.

The third motivation factor, intention to attend graduate school, shows no significant association with student performance using ANOVA (Table 3), correlations (Tables 4 and 5), or OLS regression (Table 6) when using overall points or in-class tests score to measure student performance. However, it has significant negative association at the .10 level of significance (Model 1) and at the .05 level (Model 2) when using the letter grade as the measure of student performance. This may be considered as an anomalous result in view of Table 2 showing that 41% of students who intended to go to graduate school earned 0.12 higher letter grade than students who did not intend to go to graduate school. The .12 difference is not statistically significant.

Effort Factors Associated with Student Performance:

Of the four effort variables discussed in H4 to H7, the number of study hours for the course (CHours) is statistically insignificant in explaining student performance according to both ANOVA and Pearson and Spearman correlations (Tables 3 and 4). It is correlated at the .10 level of significance with overall points when the prior ability factors are controlled for (Table 5). Table 6 indicates that the OLS regression analysis shows that CHours is significantly related to performance at the .10 level of significance for all three measures of performance under Model 1, at the .05 level (when performance is measured as in-class tests score,) and at the .01 level (when performance is measured as total points) under Model 2. This result of this study is consistent with Paulsen and Gentry (1995), and Johnson, Joyce and Sen (2002) but inconsistent with Didia and Hasnat (1998) and Nosfinger and Petry (1999).

Student performance on online homework assignments has significant relationship with student performance. The association is significant at .10 when student performance is measured as the letter grade or in-class tests score (according to ANOVA in Table 3) and at .01 when student performance is measured as overall points % (according to ANOVA, Pearson and Spearman correlations in Tables 3 and 4). This is consistent with Wooten (1998). After controlling for the prior ability factors, the significant association between performance in homework assignments and in-class tests disappears, but continues with the letter grade at the .05 level and with overall points at the .01 level (Table 5). Similar result is obtained from the OLS regression where no significant association is found between homework and the letter grade and in-class tests but there is significant association (at the .01 level) between homework and the overall points score.

Class attendance has varied significant associations with student performance depending on the definition of performance. The significance level is .10, .05 and .01 when student performance is measured as in-class tests score, letter grade, or overall points respectively as shown in ANOVA in Table 3. This again is consistent with Wooten (1998). However, as Table 4 indicates, class attendance is significant at the .10 significance level with the letter grade and at the .05 level with overall points under Pearson correlations and at the .10 level with the letter grade under Spearman correlations. As Table 5 indicates, after controlling for the prior ability factors, the significant associations between class attendance and all three measures of performance disappear. The OLS regression analysis shows no significant associations between class attendance and student performance, however defined, under both Models of Table 6.

As Table 3 indicates, students' class participation grades show no significant association with any of the three performance measures according to the ANOVA tests. However, as Table 4 indicates, both Pearson and Spearman correlations show significant associations at the .01 level when performance is measured as the letter grade or overall points and at the .05 level when performance is measured as the in-class tests score. This is consistent with Rich (2006). As Table 5 indicates, after controlling for the prior ability factors, the associations between class participation and all three measures of performance disappear. As Table 6 indicates, **the authors** obtain similar results from the OLS regression where no significant associations are found between class participation and all three measures of performance.

Distraction Factors Associated with Student Performance

As Table 3 indicates, none of the four distraction factors, Job Hours, Job Type, Number of Semester Courses, or Semester Credit Hours shows any significant association with any of the three measures of student performance based on ANOVA tests. As Table 4 indicates, Pearson correlations show significant (at .05) association between Number of Courses and Number of Credits and student performance measured as letter grade or overall points and at .10 when

performance is measured as in-class test scores. This appears to be consistent with Didia and Hasnat (1998). Spearman correlations show significant association (at the .10 level of significance) between Number of Credit Hours and student performance measured as the letter grade. After controlling for the prior ability factors, none of the four distraction factors has any significant association with any of the three measures of student performance. Similarly, as Table 6 indicates, the OLS regression analysis shows no significant association between either Job Hours or Semester Credit Hours and any of the measures of student performance. The results with regard to Job Hours are consistent with Wooten (1998) who found that work responsibility did not affect student performance in an Introductory Accounting course. The Job Type and Course Load were not included in the OLS regression analysis for the reasons explained earlier.

Table 7, Part A, indicates that each distraction factor has no significant *negative* effect on student performance (however defined) even when the other two distraction factors are controlled for. Table 7, Part B, indicates that controlling for the other two distraction factors as well as the two prior actual ability variables (FIN350 and OGPA), the results remain the same.

Self-Perceived Abilities Factors Associated with Student Performance

Of the four self-perceived abilities factors, Math, Writing, Reading, and Listening, only Math has statistical significant association with student performance (however defined) at the .05 level of significance according to ANOVA (Table 3) and Pearson and Spearman Correlations (Table 4). After controlling for the prior ability factors, even Math becomes not significantly correlated with student performance. However, as Table 6 indicates, according to OLS, Math has significant association with student performance. That association is significant at the .10 level when performance is defined as the letter grade or the in-class tests score under Model 1 and at the .05 level when performance is defined as overall points under both Models, or as in-class tests score under Model 2. This is consistent with Grover et al. (2010) and Didia and Hasnat (1998). Average of Writing, Reading and Learning self-perceived abilities combined does not have any significant association with student performance under any statistical test.

Prior Actual Ability (Control) Factors Associated with Student Performance

The ANOVA tests show significant association between the FIN 350 course grade and student performance. The association is significant at the .05 level when performance is measured as the overall points or the in-class tests and at the .01 level when performance is measured as the letter grade. However, the association between OGPA and student performance is statistically insignificant even though its F-statistic is similar to that of the FIN 350 course grade. Since OGPA is a continuous variable rounded to two decimal places it has 35 categories or cells resulting in df1=35 and df2=3 and higher critical value of F-statistic. This situation reverses itself in the OLS regression analysis in Table 6 where OGPA coefficient is significant at the .10 level for the letter grade and overall points and at the .05 level for in-class tests score. This is perhaps the case because OLS models work better with the continuous variable OGPA. In OLS, FIN 350, a discrete variable, is insignificant under both Models 1 and 2 for all the three performance measures. According to Pearson and Spearman correlations (Table 4), both FIN 350 and OGPA have significant associations at the .01 level of significance with all three measures of performance. These results are consistent with numerous studies mentioned in the literature review. Also, these significant associations make the use of these two variables for control purposes an appropriate procedure.

CONCLUSIONS AND RECOMMENDATIONS

One general conclusion of the study is that motivated students perform better in the Investments course than non-motivated students. More specifically, all the tests used in the study provided strong evidence that students who responded that they wanted to make higher grades in the Investments course ended up earning higher grades. However, Table 1 shows that there was quite a disparity between average Grade Make of 3.56 and average letter grade of only 2.31. Also, speaking of motivation, ANOVA and Pearson and Spearman Correlations provide moderate to week evidence that intention to take the CFA or the CFP examination is a motivating factor for students to perform well in the Investments course. However, intention to attend graduate school does not seem, in this study, to be a motivating factor for the students to perform well in the Investments course.

In light of the above general conclusion, it is recommended that finance faculty should encourage their students to plan to take the CFA or the CFP exam, and design courses that help them prepare for CFA and CFP. This may motivate them to study hard and to do well in the Investment course.

Another general and logically expected conclusion of the study is that students who spend more time studying for the Investments course earn better grades than those who spend less time.

A related and logically expected general conclusion of the study is that students who do well in their homework earn better test and overall grades than students who do not do as well in their homework. The ANOVA and correlation tests provide strong to moderate evidence in support of this conclusion. On the other hand, the OLS regression analysis shows that Homework's association with student performance is insignificant, and this does not support the above conclusion. However, this paradox may have to do with the statistically significant correlation between student performance and GradeMake and OGPA. Both GradeMake and OGPA have statistically significant coefficients resulting in reducing or eliminating the direct significance of Homework Grades in the OLS regression models. Significant correlations between Homework and GradeMake (Table 4) show expected relationships between motivation and effort. This is consistent with Wooten (1998) who finds significant relationship between motivation and effort. One of the variables Wooten uses to measure effort is homework submissions.

Although Class Attendance shows strong association with student performance (particularly when it is measured by the letter grade or overall points) in accordance with the ANOVA tests, evidence based on correlation coefficients, in accordance with correlations tests, is weaker. Controlling for OGPA and FIN 350 grades, the correlation between attendance and course performance variable is negative but insignificant. OLS coefficients for the Attendance variable are also generally negative but statistically insignificant. Again Attendance has significant positive correlation with Grade Make and also with OGPA. This again shows expected relationship between motivation and effort similar to Wooten (1998).

Class Participation shows statistically insignificant association with overall points performance in course and tests based on ANOVA tests. Evidence based on correlation coefficients is much stronger. After controlling for OGPA and FIN 350 grades, the correlation between class participation and course performance becomes negative but insignificant. The OLS coefficients for the Class Participation variable are also statistically insignificant. Again, Class Participation has significant positive correlation with Grade Make and also with OGPA. This again shows expected relationship between motivation and effort.

In light of the above discussion regarding Course Study Hours, Homework Grades, Class

Attendance, and Cass Participation, it can be concluded that there is direct significant association between effort and course performance based on at least one of the four statistical tests. In addition, there are associations between the effort factors (Homework Grades, Class Attendance, and Class Participation) and the motivation factor, Grade Make, and also the prior ability factor, OGPA. There is also a significant correlation between Grade Make and OGPA and the grade in FIN 350 at the .01 level of significance. One possible explanation for all this is that students with prior ability are highly motivated to achieve higher grades and put effort reflected in Homework Grades, Attendance and Class Participation. However, these students do not have to put in more study hours for the course which is reflected in statistically insignificant association between Course Study Hours and performance in the Course (letter grade and in-class test scores) according to both ANOVA tests and correlation tests (Tables 3 and 4). Only when the other variables are controlled for, which OLS does, the Course Study Hours coefficient is found to be significant at the .10 level of significance. Therefore, it can be concluded that, everything else being the same, more studying can improve students' performance in test scores and overall points score.

In light of the above discussions, it is recommended that finance and accounting faculty inform their students that research shows that these activities do indeed improve students' grades.

An initial conclusion from the statistical tests of this study is that the distraction variables, i.e. number of hours of work per week, working in non-finance, accounting, or business related job, number of course credit hours taken in the semester have no statistical significant negative associations with student performance. That is, they do not distract the students and prevent them from earning higher grades in the Investments course. This is consistent with Chan et al. (1997), Wooten (1998), and others.

However, upon a closer look, Table 2 shows that 41% of the students (those who are working 20 hour or more per week) earned 0.30 less letter grade points, 5.0 less in overall points percentage, and 2.8% less in in-class tests score than students who are working less than 20 hours per week. Similarly, 45% of the students (those who are working in non-finance, accounting, or business related jobs) earned 0.33 less letter grade points, 4.5 less in overall points, and 3.9% less in in-class tests score than those who have accounting, finance, or business related jobs. While these numbers are not statistically significant, they cannot be completely ignored.

Moreover, Job Hours show significant negative Pearson correlation with Homework Grade, Attendance, Course Study Hours, and Semester Credit Hours (Table 4). These results are consistent with Paisey and Paisey (2004) and Lynn and Robinson- Backmon (2005). The first three of these may have negative consequences for learning outcomes not reflected in course in-class tests, overall points, or letter grade. The last one could delay graduation.

Surprisingly, 44% of the students (those taking 6 or more courses in the semester) earned 0.39 higher letter grade points, 4.2% higher overall points percentage, and 4.0% more in-class tests percentage. However, none of those are statistically significant. Pearson correlations show significant correlations between Number of Credit Hours and letter grade and overall points (at the .05 level of significance) and in-class tests (at .10% level of significance). However, after controlling for the prior ability factors, the correlations between Number of Credit Hours and performance measures are small and insignificant (Table 5). This may indicate that better students take more courses. This conjecture is confirmed in Table 4 which shows significant high correlation between Course Credit hours and OGPA at 5% or better level of significance. Moreover, per Table 6, while the OLS regression results show that Course Credit Hours coefficients are negative, they are not statistically significant, under both Models, all across the three measures of student performance.

In light of these conclusions, it is recommended that students be encouraged to work fewer than 20 hours per week so that they can earn better grades and graduate sooner.

A fourth general conclusion of the study is that students' estimate of their own math ability has significant association with students' performance in the Investments course. The statistically significant OLS coefficients for Math show that, everything else remaining the same, students with better Math ability perform better in the Investment course. Students' self-reported writing, reading, and listening abilities are not significantly associated with student performance in the course.

In light of this general conclusion, it is recommended that the college of business faculty in general, and finance faculty in particular, should encourage students with better math abilities to major in finance and students interested in the Finance major be encouraged to assess and develop their math abilities.

As expected and as shown in prior studies with respect to other courses, a fifth general conclusion of the study is that students with high prior actual ability end up earning high grades in the Investments course. Specifically, the study provides strong evidence that students' performance in FIN350 and their OGPA, are strong predictors of their performance in the Investments course.

In light of this general conclusion, it is recommended that accounting and finance faculty encourage their students to study hard and improve their GPA by emphasizing that research shows that students with high overall GPA continue to earn high grades in the Investments course. Again, it must be realized that some faculty may already be doing this; thus, these recommendations are for those who may not be.

STUDY LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

This study is subject to some limitations. One limitation is that the study school is a public (or state-supported) university and, thus, the conclusions may not be applicable to private schools. One suggestion for further research is to replicate the study at a private school. Another limitation is that the study school is a residential school with most students enrolling in the Investments course in their early 20s and it is possible that the results may not be generalizable to commuter schools with generally older students. Consequently, another suggestion for further research is to replicate the study at a commuter school with older students. A third limitation is that the study sample is somewhat small relative to the number of variables analyzed and, hence, the results may not be as robust as they would have been if the sample was larger. Thus, another suggestion for further research is to replicate the study using a somewhat larger sample by collecting data over a number of years if class size is small.

REFERENCES

Babcock, P. and Marks, M. (2011), "The Falling Time Cost of College: Evidence from Half a Century of the Time Use Data," *The Review of Economics and Statistics,* May 2011, 93(2): 468-478.

Baldwin, B. A. and Howe, K. R, (1982), "Secondary-level Study of Accounting and Subsequent Performance in the First College Course," *The Accounting Review*, Vol. 3, pp.619-626.

Bartlett, S. M., Peel, J. and Pendlebury, M, (1993), "From Fresher to Finalist: A Three-year Study of Student Performance on an Accounting Degree Program," *Accounting Education: an international journal,* Vol. 2, pp. 111-122.

Bergin, L. J. (1983), "The Effect of Previous Accounting Study on Student Performance in the First College-level Financial Accounting Course," *Issues in Accounting Education,* Vol.1, pp. 19-28.

Biktimirov, E.N. and Klassen, K.J. (2008), "Relationship between Use of Online Support Materials and Student Performance in an Introductory Finance Course," *Journal of Education for Business,* (January/February), pp. 153-158.

Borg, M. O., Mason, P.M. and Shapiro, S. L. (1989), "The Case of Effort Variables in Student Performance," *Journal of Economic Education* (Summer), pp. 308-313.

Buckless, F. A., Lipe, M. G. and Ravenscroft, S.P., (1991), "Do Gender Effects on Accounting Course Performance Persist After Controlling for General Academic Aptitude?" *Issues in Accounting Education,* Vol. 6, pp. 248-261.

Canlar, M. (1986), "College-level Exposure to Accounting Study and Its Effect on Student Performance in the First MBA-level Financial Accounting Course", *Issues in Accounting Education,* Vol. 1, pp. 13-23.

Carrington, L. G. (2012), "The Impact of the Principles of Accounting Experience on Student Preparation for Intermediate Accounting," *American Journal of Business Education,* (July/August), Vol. 5, No. 4, pp. 473-481.

Chan, K. C. and Shum, C. (2004), "An Empirical Analysis of Cumulative/Rework Testing Strategy: Its Effect on Student Performance in Principles of Finance," *Journal of Financial Education* (Winter), Vol. 30, pp. 16-31.

Chan, K. C., Shum, C. and Lai, P. (1996), "An Empirical Study of Cooperative Instructional Environment on Student Achievement in Principles of Finance," *Journal of Financial Education,* (Fall), Vol. 22, pp. 21-28.

Chan, K. C., Shum, C. and Wright, D. J. (1997), "Class Attendance and Student Performance in Principles of Finance," *Financial Practice and Education,* (Fall/Winter), Vol. 7, No. 2, pp.58-65.

Chatterjee, A. and Ayadi, O.F. (2005), "Enhancing Teaching Effectiveness and Student Performance in Finance Courses: Evaluation of Relevant Factors," *Southwestern Business Administration Journal,* (Spring), Vol. 5, No. 1, pp. 36-58

Chen, C. T., Maksy, M. and Zheng, L. (2009), "Factors Associated with Student Performance in Auditing and Contemporary Financial Accounting Issues," *International Journal of Education Research,* (Spring), Vol. 4, No.2, pp. 56-71.

Didia, D. and Hasnat, B. (1998), "The Determinants of Performance in the University Introductory Finance Course," *Financial Practice and Education,* (Spring/Summer), Vol. 1, No. 1, pp. 102-107.

Dolvin, S. D. and Pyles, M. K. (2011), "The Influence of Simulation Performance on Student Interest," *Journal of Economics and Economic Education Research,* Vol. 12, No. 3, pp. 35-48

Doran, B., Bouillon, M. L. and Smith, C.G. (1991), "Determinants of Student Performance in Accounting Principles I and II", *Issues in Accounting Education,*(Fall), Vol. 6, No. 1, pp.74-84.

Duff, A. (2004), "Understanding Academic Performance and Progression of First-year Accounting and Business Economics Undergraduates: The Role of Approaches to Learning and Prior Academic Achievement", *Accounting Education,* (December), Vol. 13, pp. 409-430.

Durden, G. C. and Ellis, L. V. (1995), "The Effects of Attendance on Student Learning in Principles of Economics," *American Economic Review,* (May), Vol. 85, No. 1, pp. 343-346.

Eckel, N. and Johnson, W.A. (1983), "A Model for Screening and Classifying Potential", *Accounting Education,* Vol. 2, pp. 1-15.

Eskew, R. K. and Faley, R. H. (1988), "Some Determinants of Student Performance in the First College-level Financial Accounting Course", *The Accounting Review* (January), pp.137-147.

Ely, D. P. and Hittle, L. (1990), "The Impact of Math Background on Performance in Managerial Economics and Basic Finance Courses," *Journal of Financial Education,* (Fall), Vol. 19, No.2, pp. 59-61.

Gammie, E., Paver, B., Gammie, B, and Duncan, F. (2003), "Gender Differences in Accounting Education: An Undergraduate Exploration", *Accounting Education* (June), Vol. 12, pp. 177-197.

Gist, W. E., Goedde, H. and Ward, B.H. 1996, "The Influence of Mathematical Skills and Other Factors on Minority Student Performance in Principles of Accounting", *Issues in Accounting Education,* Vol. 1, pp. 49-60.

Gracia, L. and Jenkins, E. (2003), "A Quantitative Exploration on an Undergraduate Accounting Programme of Study", *Accounting Education* (March), Vol. 12, pp. 15-32.

Grover, G., Heck, J. and Heck, N. (2010), "Pretest in an Introductory Finance Course: Value Added?" *Journal of Education for Business,* Vol. 85, pp.64-67.

Gul, F. A. and Fong. S. C. (1993), "Predicting Success for Introductory Accounting Students: Some Further Hong Kong Evidence", *Accounting Education: an international journal,* Vol. 1, pp. 33-42.

Guney, Y. (2009), "Exogenous and Endogenous Factors Influencing Students' Performance in Undergraduate Accounting Modules", *Accounting Education* (February), Vol. 18, pp. 51-73.

Heck, J. L. and Stout, D. E. (1998), "Multiple-Choice vs. Open-Ended Exam Problems: Evidence of Their Impact on Student Performance in Introductory Finance," *Financial Practice and Education* (Spring/Summer), Vol. 8, No. 1, pp. 83-93.

Henebry, K. and Diamond, J. (1998), "The Impact of Student and Professor Gender on Grade Per5formance in the Managerial Finance Course," *Financial Practice and Education* (Spring/Summer), Vol. 8, No. 1, pp. 94-101

Hicks, D. W. and Richardson, F. M. (1984), "Predicting Early Success in Intermediate Accounting: The Influence of Entry Examination and GPA", *Issues in Accounting Education,* (Spring), pp. 61-67.

Huffman, F. E. (2011), "Student Performance in an Undergraduate Advanced Real Estate Course: Real Estate Majors vs. Finance Majors," *Journal of Real Estate Practice and Education,* Vol. 14, No. 2, pp. 111-123

Ingram, R. W. and Peterson, R. J. (1987), "An Evaluation of AICPA Tests for Predicting the Performance of Accounting Majors", *The Accounting Review* (January), pp. 215-223.

Ingram, R. W, Albright, T. L. and Baldwin, A. B. (2002) *Financial Accounting—a Bridge to Decision Making.* Cincinnati, OH: Thomson South-western.

Jackling, B. and Anderson, A. (1998), "Study Mode, General Ability and Performance in Accounting: A Research Note", *Accounting Education: an international journal,* Vol. 1, pp.33-42.

Jenkins, E. K. (1998), "The Significant Role of Critical Thinking in Predicting Auditing Students' Performance", *Journal of Education for Business,* Vol. 5, pp. 274-280.

Johnson, D. L., Joyce, P. and Sen, S. (2002), "An Analysis of Student Effort and Performance in the Finance Principles Course", *Journal of Applied Finance* (Fall/Winter), Vol. 12, No. 2, pp.67-72.

Kohl, M. Y. and Kohl, H. C. (1999), "The Determinants of Performance in an Accountancy Degree Course", *Accounting Education: an international journal,* Vol. 1, pp.13-29.

Lane, A. and Porch, M. (2002), "The Impact of Background Factors on the Performance of No specialist Undergraduate Students on Accounting Modules – A Longitudinal Study: A Research Note", *Accounting Education,* Vol. 1, pp. 109-118.

Lipe, M. G. (1989), "Further Evidence on the Performance of Female Versus Male Accounting Students", *Issues in Accounting Education,* Vol. 1, pp. 144-152.

Lynn, S. and Robinson-Backmon, I. (2005), "An Investigation of an Upper-Division Undergraduate Accounting Course and the Factors That Influence Learning Outcomes," Vol. 13, pp. 133-140.

Marks, B. R. (1998), "An Examination of the Effectiveness of a Computerized Learning Aid in the Introductory Graduate Finance Course," *Financial Practice and Education* (Spring/Summer), Vol. 8, No. 1, pp. 127-132.

Maksy, M. and Zheng, L. (2008), "Factors Associated with Student Performance in Advanced Accounting and Auditing: An Empirical Study in a Public University", *Accounting Research Journal*, Vol. 21, pp. 16-32.

Mutchler, J. E., Turner, T. H. and Williams, D.D. (1987), "The Performance of Female versus Male Accounting Students," *Issues in Accounting Education*, Vol. 1, pp. 103-111.

Nosfinger, J. and Petri, G. (1999), "Student Study Behavior and Performance in Principles of Finance," *Journal of Financial Education,* (Spring), pp. 33-41.

Pace, R. D. (2010), "Using Aplia in Finance Classes: Student Perspectives and Performance," *American Journal o0f Business Education,* (October), Vol. 3, No. 10, pp.63-68.Paisey, C. and Paisey, N. (2004), "Student Attendance in an Accounting Module – Reasons for Non-attendance and the Effect on Academic Performance in a Scottish University", *Accounting Education,* (December), Vol. 13, pp. 39-53.

Pascarella, E. and Terenzini, P. (1991), "*How College Affects Students: Findings and Insights from Twenty Years of Research",* San Francisco, CA: Jossey-Bass Publisher.

Paulsen, M. B. and Gentry, J. A. (1995), "Motivation, Learning Strategies, and Academic Performance: A Study of the College Finance Classroom," *Financial Practice and Education,* (Spring/Summer), Vol. 5, No. 1, pp.78-89.

Rich, S. P. (2006), "Student Performance: Does Effort Matter?" *Journal of Applied Finance*

Rohde, F. H. and Kavanagh, M. (1996), "Performance in First Year University Accounting: Quantifying the Advantage of Secondary School Accounting," *Accounting and Finance,* Vol. 2, pp. 275-285.

Schleifer, L. and Dull, R. (2009), "Metacognition and Performance in the Accounting Classroom", *Issues in Accounting Education* (August), Vol. 24, pp. 339-367

Schroeder, N.W. (1986), "Previous Accounting Education and College-level Accounting Examination Performance," *Issues in Accounting Education,* Vol. 1, pp. 37-47.

Sen, S., Joyce, P., Farrell, K. and Toutant, J. (1997), "Performance in Principles of Finance Courses by Students with Different Specializations," *Financial Practice and Education* (Fall/Winter), Vol. 7, No. 2, pp. 66-73.

Smolira, J. C. (2008), "Student Perceptions of Online Homework in Introductory Finance Courses," *Journal of Education for Business,* (November/December), pp.90-94.

Tickell, G. and Smyrnios, K (2005), "Predictors of Tertiary Accounting Students' Academic Performance: A Comparison of Year 12-to-University Students with TAFE-to-University Students", *Journal of Higher Education Policy and Management,* (July), Vol. 27, pp. 239 – 259.

Tho, L. M. (1994), "Some Determinants of Student Performance in the University of Malaya Introductory Accounting Course", *Accounting Education: an international journal,* Vol. 4, pp. 331-340.

Trine, J. and Schellenger, M. (1999), "Determinants of Student Performance in an Upper Level Corporate Finance Course," *Academy of Educational Leadership Journal*, Vol. 3, No. 2, pp. 42-52.

Tyson, T. (1989), "Grade Performance in Introductory Accounting Courses: Why Female Students Outperform Males", *Issues in Accounting Education,* Vol. 1, pp. 153-160.

Van Ness, B. F., Van Ness, R. A. and Adkins, R. L. (2000), "Student Performance in Principles of Finance: Difference Between Traditional and Internet Settings," *Financial Practice and Education,* (Fall/Winter), Vol. 10, No. 2, pp. 160-166.

Wilson, A. (2002), "Exogenous Determinants of Student Performance, *Financial Decisions,* (Spring), pp. 1-15

Wooten, T. (1998), "Factors Influencing Student Learning in Introductory Accounting Classes: A Comparison of Traditional and Nontraditional Students", *Issues in Accounting Education* (May), Vol. 13, pp. 357-373.

TABLES

Table 1
Descriptive Statistics for the Study Non-binary Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Letter Grade[1]	39	0	4	2.31	1.20
Overall Points %	39	39	94	76.85	12.72
In-Class Tests in %	39	48	94	75.26	12.63
FIN 350 Grade[1]	39	1	4	3.21	0.92
OGPA	39	2.04	4.00	3.11	0.51
Grade Make[1]	39	2	4	3.56	0.68
Home Work Grade in %	39	5	100	82.90	23.94
Attendance in %	39	46	100	84.03	16.66
Class Participation Grade in %	39	23	80	56.74	14.97
Course Study Hours	39	0.50	8.00	3.01	1.59
Total Study Hours	39	0.50	25.00	11.79	6.65
Job Hours	39	0.00	52.0	16.19	12.64
Number of Courses	39	2	7	5.21	1.03
Number of Credit Hours	39	6	18	15.41	2.92
Math Ability[2]	39	1	4	3.44	0.72
Writing Ability[2]	39	1	4	3.15	0.78
Reading Ability[2]	39	1	4	3.10	0.85
Listening Ability[2]	39	1	4	3.18	0.76
Average of Write/Read/Listen	39	1.33	4.00	3.15	0.66

[1]A = 4.00; B = 3.00; C = 2.00; D = 1.00; F = 0.00
[2]Very Good =4; Good =3; Average =2; Poor =1

Table 2
Differences in Means Tests for Selected Variables

Variable	Category	Number (%)	Mean Letter Grade	Mean Overall Points %	Mean In-Class Tests %
Gender	Male	27 (69)	2.41	77.6	76.3
	Female	12 (31)	2.08	75.3	73.0
	Male – Female		0.33	2.3	3.3
	P-Value		0.442	0.608	0.465
Age	Above 22	7 (18)	1.86	72.6	73.3
	18-22	32 (82)	2.41	77.8	75.7
	Difference		-0.55	-5.2	-2.4
	P-Value		0.277	0.333	0.655
Primary Major	Finance	33 (85)	2.45	78.3	76.9
	Other	6 (15)	1.50	69.0	66.3
	Finance – Other		0.95	9.3	10.6
	P- Value		0.071*	0.101	0.059*
CFA/CFP	Yes	16[1] (41)	2.63	81.1	79.1
	No/Maybe	23 (59)	2.09	73.9	72.6
	Yes – No/Maybe		0.54	7.2	6.5
	P-Value		0.170	0.079*	0.112
Grad School	Yes	16[1] (41)	2.38	79.0	76.7
	No/Maybe	23 (59)	2.26	75.4	74.3
	Yes – No/Maybe		0.12	3.6	2.4
	P-Value		0.774	0.385	0.562
Job Hours	20 hours or more	16 (41)	2.13	73.9	73.6
	Less than 20 hours	23 (59)	2.43	78.9	76.4
	Difference		-0.30	-5.0	-2.8
	P-Value		0.433	0.276	0.492
Job Type	Other	14 (45)	2.14	74.6	73.9
	Acc-Fin-Bus Rel.	17 (55)	2.47	79.1	77.8
	Difference		-0.33	-4.5	-3.9
	P-Value		0.467	0.370	0.411
Course Load	6 or more courses	17(44)	2.53	79.2	77.5
	Fewer than 6 courses	22 (56)	2.14	75.0	73.5
	Difference		0.39	4.2	4.0
	P-Value		0.315	0.321	0.343

*Significant at 10% level of significance using two tails test
[1]Only 10 students indicated preference for both CFA/CFP and Graduate school

Table 3
One-Way Analysis of Variance
(All numbers are for Between Groups Only)
Complete ANOVA Numbers are Available from the Authors upon Request

		Dependent Variables					
		Letter Grade		Overall Points %		In-Class Tests %	
Indep. Var.	**DF**	**F**	**Sig.**	**F**	**Sig.**	**F**	**Sig.**
Grade Make	2/36	19.778	0.000***	28.314	0.000***	20.162	0.000***
CFA/CFP	1/37	1.960	0.170	3.254	0.079*	2.655	0.112
Grad School	1/37	0.084	0.774	0.774	0.385	0.342	0.562
Course Study Hours	11/27	0.243	0.991	0.224	0.994	0.282	0.984
Home Work	20/18	2.062	0.064*	3.715	0.004***	1.850	0.097*
Attendance	11/27	2.451	0.028**	3.043	0.009***	1.855	0.093*
Class Participation	21/17	1.318	0.284	1.844	0.102	1.045	0.469
Job Hours	16/22	0.673	0.790	0.691	0.773	0.485	0.929
Job Type	1/29	0.544	0.467	0.830	0.370	0.696	0.411
Course Load	4/34	1.441	0.242	1.945	0.125	1.449	0.239
Credit Load	5/33	1.302	0.287	1.481	0.223	1.177	0.341
Math	3/35	3.235	0.034**	3.236	0.034**	4.072	0.014**
Write	3/35	0.218	0.883	0.367	0.777	0.087	0.967
Read	3/35	0.104	0.957	0.234	0.872	0.052	0.984
Listen	3/35	1.587	0.210	0.868	0.467	1.744	0.176
AvWRL	7/31	1.297	0.285	1.496	0.205	1.209	0.327
FIN350	3/35	4.982	0.006***	4.039	0.014**	3.506	0.025**
OGPA	35/3	4.569	0.117	3.357	0.173	4.302	0.127

*Significant at 10% level of significance using two tails test
**Significant at 5% level of significance using two tails test
***Significant at 1% level of significance using two tails test

Table 4
Pearson\Spearman Correlation Coefficients

	LtrGrd	Points	Tests	Mjr	GrdMk	CFA/ CFP	Grd Sch	Attd	CStdy	TStdy	ClPrt	HW	JbHrs	JbTyp	CLoad	CrdLd	Mth	Wrt	Read	Lstn	AvWRL	FIN 350	OGPA	Gender	Age
LtrGrd	1	0.97^{1}	0.95^{1}	0.30^{10}	0.70^{1}	0.23	0.05	0.29^{10}	0.12	0.17	0.43^{1}	0.63^{1}	-0.10	0.11	0.23	0.27^{10}	0.35^{5}	-0.07	0.01	0.19	0.06	0.51^{1}	0.68^{1}	0.13	-0.13
Points	0.95^{1}	1	0.99^{1}	0.30^{10}	0.71^{1}	0.27^{10}	0.12	0.23	0.11	0.17	0.45^{1}	0.60^{1}	-0.08	0.12	0.24	0.23	0.39^{5}	-0.02	0.05	0.20	0.10	0.51^{1}	0.72^{1}	0.11	-0.10
Tests	0.96^{1}	0.96^{1}	1	0.32^{5}	0.70^{1}	0.28^{10}	0.10	0.14	0.08	0.12	0.38^{5}	0.51^{1}	-0.05	0.09	0.25	0.26	0.41^{1}	-0.03	0.08	0.19	0.11	0.48^{1}	0.69^{1}	0.13	-0.05
Mjr	0.29^{10}	0.27	0.31^{10}	1	0.15	0.21	-0.22	0.00	0.13	-0.06	0.07	0.28^{10}	0.10	-0.05	-0.21	-0.21	0.06	-0.07	-0.09	-0.18	-0.15	-0.04	-0.09	0.33^{5}	0.01
GrdMk	0.72^{1}	0.78^{1}	0.72^{1}	0.15	1	0.19	0.29^{10}	0.35^{5}	0.02	0.03	0.42^{1}	0.49^{1}	-0.17	0.09	0.22	0.29^{10}	0.16	-0.04	0.18	0.07	0.12	0.54^{1}	0.69^{1}	0.10	-0.14
CFA/CFP	0.22	0.28^{10}	0.26	0.21	0.23	1	0.36^{5}	0.20	-0.10	-0.06	0.50^{1}	0.12	0.04	0.25	0.09	0.12	0.23	0.07	-0.05	0.08	0.01	-0.03	0.09	0.10	0.15
GrdSch	0.05	0.14	0.10	-0.22	0.44^{1}	0.36^{5}	1	0.35^{5}	-0.06	0.09	0.38^{5}	0.11	-0.20	0.04	0.27^{10}	0.28^{10}	-0.00	0.16	0.01	-0.01	0.06	0.26	0.28^{10}	-0.24	-0.12
Attd	0.27^{10}	0.36^{5}	0.19	0.01	0.31^{10}	0.24	0.34^{5}	1	0.21	0.21	0.77^{1}	0.53^{1}	-0.36^{5}	0.15	0.31^{10}	0.33^{5}	-0.16	-0.04	-0.14	0.00	-0.11	0.23	0.36^{5}	-0.12	-0.19
CStdy	0.09	0.13	0.04	0.13	-0.09	-0.12	-0.03	0.30^{10}	1	0.31^{1}	0.17	0.21	-0.21	0.03	0.13	0.13	-0.18	0.21	-0.16	-0.05	-0.04	-0.09	-0.00	-0.01	-0.22
TStdy	0.23	0.23	0.16	-0.06	0.10	-0.05	0.11	0.30^{10}	0.79^{1}	1	0.22	0.21	-0.13	0.06	0.29^{10}	0.30^{10}	-0.08	0.21	-0.09	0.09	0.05	0.05	0.12	-0.18	-0.23
ClPrt	0.43^{1}	0.53^{1}	0.40^{5}	0.05	0.44^{1}	0.49^{1}	0.37^{5}	0.84^{1}	0.19	0.28^{10}	1	0.50^{1}	-0.20	0.28	0.24	0.28^{10}	-0.02	0.11	-0.08	0.12	0.02	0.35^{5}	0.50^{1}	0.02	0.07
HW	0.66^{1}	0.76^{1}	0.58^{1}	0.19	0.66^{1}	0.16	0.15	0.59^{1}	0.30^{10}	0.34^{5}	0.55^{1}	1	-0.19	0.07	0.10	0.09	0.02	-0.18	-0.10	-0.02	-0.11	0.52^{1}	0.45^{1}	0.17	-0.30^{10}
JbHrs	-0.16	-0.21	-0.09	0.09	-0.24	0.08	-0.20	-0.41^{1}	-0.29^{10}	-0.21	-0.25	-0.40^{5}	1	-0.48^{1}	-0.41^{5}	-0.33^{5}	-0.04	0.01	0.10	0.20	0.17	-0.21	-0.26	-0.18	0.48^{1}
JbTyp	0.14	0.17	0.15	-0.05	0.11	0.25	0.04	0.09	0.03	0.03	0.24	0.11	-0.45^{5}	1	0.20	0.20	0.09	-0.36^{5}	-0.27	-0.24	-0.37^{5}	-0.05	0.07	0.21	-0.29
CLoad	0.33^{5}	0.37^{5}	0.31^{10}	-0.19	0.36^{5}	0.04	0.29^{10}	0.40^{5}	0.16	0.37^{5}	0.34^{5}	0.37^{5}	-0.56^{1}	0.16	1	0.97^{1}	0.24	-0.21	0.01	-0.05	-0.12	0.18	0.36^{5}	-0.33^{5}	-0.17
CrdLd	0.33^{5}	0.37^{5}	0.30^{10}	-0.21	0.40^{5}	0.06	0.30^{10}	0.40^{5}	0.13	0.36^{5}	0.37^{5}	0.36^{5}	-0.54^{1}	0.18	0.98^{1}	1	0.20	-0.21	0.02	-0.07	-0.12	0.18	0.36^{5}	-0.37^{5}	-0.13
Mth	0.39^{5}	0.38^{5}	0.45^{1}	0.06	0.18	0.15	-0.07	-0.16	-0.28^{10}	-0.07	-0.05	0.09	0.00	0.08	0.30^{10}	0.28^{10}	1	-0.15	-0.09	0.11	-0.04	-0.02	0.26	-0.05	-0.24
Wrt	-0.05	0.08	-0.05	-0.10	0.03	0.10	0.17	0.20	0.28^{10}	0.21	0.26	0.04	-0.07	-0.26	0.06	0.06	-0.17	1	0.41^{1}	0.57^{1}	0.75^{1}	0.14	-0.01	0.21	0.17
Read	-0.03	-0.05	-0.01	-0.12	0.22	-0.04	0.02	-0.13	-0.25	-0.13	-0.06	-0.13	0.02	-0.25	0.16	0.16	-0.12	0.41^{1}	1	0.56^{1}	0.84^{1}	0.25	0.14	0.05	0.20
Lstn	0.11	0.09	0.07	-0.18	0.05	0.08	0.01	0.05	-0.01	0.12	0.17	0.05	0.12	-0.18	0.05	0.05	0.05	0.62^{1}	0.54^{1}	1	0.85^{1}	0.24	0.24	-0.05	0.09
AvWRL	0.01	0.02	0.01	-0.16	0.13	0.05	0.08	0.04	0.00	0.07	0.15	-0.03	0.03	-0.27	0.11	0.12	-0.10	0.81^{1}	0.80^{1}	0.86^{1}	1	0.28^{10}	0.17	0.07	0.20
FIN 350	0.51^{1}	0.48^{1}	0.46^{1}	-0.06	0.57^{1}	-0.02	0.27^{10}	0.24	-0.07	0.14	0.33^{5}	0.41^{1}	-0.29^{10}	-0.05	0.34^{5}	0.34^{5}	-0.02	0.18	0.31^{10}	0.21	0.28^{10}	1	0.68^{1}	0.09	-0.04
OGPA	0.73^{1}	0.74^{1}	0.73^{1}	-0.08	0.69^{1}	0.13	0.27^{10}	0.37^{5}	-0.05	0.20	0.53^{1}	0.51^{1}	-0.27	0.05	0.46^{1}	0.47^{1}	0.33^{5}	0.07	0.17	0.23	0.19	0.66^{1}	1	-0.04	-0.04
Gender	0.13	0.09	0.12	0.33^{5}	0.06	0.10	-.0.24	-0.14	0.07	-0.11	0.01	0.03	-0.11	0.21	-0.30^{10}	-0.35^{5}	-0.06	0.13	0.02	-0.06	0.04	0.09	-0.07	1	0.02
Age	-0.18	-0.16	-0.07	0.01	-0.19	0.15	-0.12	-0.09	-0.24	-0.27^{10}	0.04	-0.40	0.56^{1}	-0.29	-0.36^{5}	-0.35^{5}	-0.19	0.08	0.18	0.07	0.14	-0.11	-0.06	0.02	1

^{1}1% level of significance using two tails test.
^{5}5% level of significance using two tails test.
^{10}10% level of significance using two tails test.

Table 5
Pearson Partial Correlation Coefficients (Controlling for FIN 350 and OGPA)

	LtrGrd	Points	Tests	Mjr	GrdMk	CFA/ CFP	Grd Sch	Attd	CStdy	TStdy	ClPrt	HW	JbHrs	JbTyp	CLoad	CrdLd	Mth	Wrt	Read	Lstn	AvWRL	Gender	Age
LtrGrd	1																						
Points	0.90[1]	1																					
Tests	0.88[1]	0.90[1]	1																				
Mjr	0.57[1]	0.51[5]	0.57[1]	1																			
GrdMk	0.56[5]	0.69[1]	0.64[1]	0.42[10]	1																		
CFA/CFP	0.14	0.21	0.14	0.02	0.42[10]	1																	
GrdSch	-0.29	-0.20	-0.17	-0.27	0.09	0.50[5]	1																
Attd	-0.13	-0.05	-0.30	0.01	-0.16	0.37	0.33	1															
CStdy	0.32	0.40[10]	0.27	-0.02	0.10	-0.32	-0.20	0.11	1														
TStdy	0.31	0.30	0.14	-0.17	0.11	-0.16	-0.05	0.17	0.89[1]	1													
ClPrt	-0.11	0.00	-0.22	-0.02	0.01	0.58[1]	0.20	0.84[1]	0.02	0.10	1												
HW	0.51[5]	0.60[1]	0.24	0.20	0.29	-0.01	-0.24	0.33	0.41[10]	0.46[5]	0.18	1											
JbHrs	0.20	0.13	0.17	0.13	-0.01	0.21	-0.23	-0.13	-0.33	-0.41[10]	-0.00	-0.04	1										
JbTyp	-0.22	-0.27	-0.22	-0.25	-0.12	0.11	-0.01	-0.02	-0.06	0.10	0.16	-0.24	-0.56[1]	1									
CLoad	0.03	0.16	0.04	-0.08	0.17	0.06	0.31	0.22	0.30	0.39[10]	0.13	0.24	-0.76[1]	0.27	1								
CrdLd	0.05	0.19	0.06	-0.08	0.17	0.16	0.30	0.21	0.21	0.35	0.19	0.27	-0.73[1]	0.33	0.97[1]	1							
Mth	0.26	0.34	0.29	0.05	0.15	0.14	0.20	-0.11	0.06	0.20	-0.17	0.31	-0.35	0.18	0.46[5]	0.45[5]	1						
Wrt	-0.09	0.18	-0.06	-0.11	0.21	0.17	0.08	0.41[10]	0.41[10]	0.29	0.47[5]	0.30	0.03	-0.21	0.18	0.15	-0.13	1					
Read	-0.02	0.07	0.14	0.13	0.26	-0.07	-0.18	-0.22	0.04	-0.07	-0.02	-0.21	0.07	-0.04	0.10	0.10	-0.13	0.41[10]	1				
Lstn	0.01	0.07	-0.08	-0.25	-0.01	0.09	-0.12	0.12	0.12	0.15	0.21	0.14	0.27	-0.02	-0.02	-0.03	-0.13	0.66[10]	0.59[1]	1			
AvWRL	-0.04	0.12	-0.01	-0.10	0.17	0.08	-0.09	0.13	0.23	0.15	0.27	0.10	0.15	-0.11	0.10	0.08	-0.15	0.83[1]	0.79[1]	0.90[1]	1		
Gender	0.23	0.17	0.28	0.22	0.27	0.12	-0.25	-0.23	0.07	0.02	0.05	-0.17	0.24	0.08	-0.27	-0.31	0.00	0.15	0.24	0.07	0.18	1	
Age	-0.24	-0.25	-0.08	0.10	-0.16	0.14	0.10	0.03	-0.44[10]	-0.39[1]	0.19	-0.54[5]	0.60[1]	-0.37	-0.57[1]	-0.57[1]	-0.50[5]	0.15	0.26	0.14	0.22	0.29	1

[1] 1% level of significance using two tails test.
[5] 5% level of significance using two tails test.
[10] 10% level of significance using two tails test.

Table 6
Regression Analysis
(All numbers are for 39 Observations)

Indep. Variables	Dependent Variables											
	Letter Grade				Overall Points %				In-Class Tests %			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	-4.418	0.004***	-4.913	0.000***	6.968	0.552	-4.576	0.693	6.791	0.651	1.291	0.921
GrdMake	0.529	0.081*	0.768	0.003***	6.204	0.017**	10.174	0.000***	7.145	0.031**	8.463	0.002***
CFA/CFP	0.350	0.277	0.383	0.148	2.191	0.415	3.909	0.115	3.048	0.377	4.204	0.132
GradSch	-0.463	0.096*	-0.550	0.042**	-2.014	0.378	-3.636	0.143	-2.822	0.335	-3.449	0.215
CHours	0.152	0.090*	0.265	0.017**	1.436	0.057*	2.287	0.004***	1.775	0.066*	2.089	0.017**
HomeWork	0.012	0.177			0.194	0.010***			0.065	0.475		
Attendance	-0.006	0.698	0.002	0.822	-0.137	0.304	0.073	0.380	-0.165	0.334	-0.057	0.538
ClParticip	0.002	0.915			0.156	0.334			0.113	0.582		
JobHours	0.012	0.304	0.010	0.357	0.085	0.385	0.073	0.491	0.128	0.305	0.131	0.275
CrdLoad	-0.008	0.877	-0.019	0.724	-0.190	0.670	-0.354	0.472	-0.218	0.703	-0.268	0.628
Math	0.351	0.105	0.412	0.052*	3.805	0.039**	4.703	0.019**	4.443	0.058*	4.681	0.037**
AvWRL	-0.205	0.265	-0.247	0.173	-1.412	0.358	-2.005	0.233	-2.286	0.248	-2.434	0.200
FIN350	0.237	0.205	0.286	0.121	0.542	0.725	1.394	0.409	1.246	0.530	1.550	0.415
OGPA	0.798	0.065*	0.756	0.058*	6.799	0.061*	7.088	0.057*	9.269	0.048**	9.863	0.021**
Adj. R^2	0.691		0.692		0.808		0.763		0.681		0.695	
F	7.549	0.000***	8.769	0.000***	13.291	0.000***	12.148	0.000***	7.230	0.000***	8.875	0.000***

*Significant at 10% level of significance using two tails test
**Significant at 5% level of significance using two tails test
***Significant at 1% level of significance using two tails test

Table 7

Partial Correlation Coefficients of Selected Distraction Factors with Student Performance[a]

Part A ***Part B***

Dep. Var.	Letter Grade		Overall Points %		In-Class Tests %		Dep. Var.	Letter Grade		Overall Points %		In-Class Tests %	
Dist. Factor	*Coef.*	*Sig.*	*Coef.*	*Sig.*	*Coef.*	*Sig.*	Dist. Factor	*Coef.*	*Sig.*	*Coef.*	*Sig.*	*Coef.*	*Sig.*
JHours	.011	.953	-.066	.729	-.023	.906	**JHours**	-.036	.856	-.132	.503	-.085	.667
JType	.135	.477	.139	.463	.158	.404	**JType**	.120	.544	.127	.521	.141	.474
CLoad	.204	.280	.185	.328	.149	.433	**CLoad**	-.040	.842	-.077	.697	-.128	.517

a ***Part A:*** *While controlling for the other two distraction factors.*
Part B: *While controlling for the other two distraction factors as well as prior actual ability factors (FIN350 & OGPA).*