

Motivation and Distraction Factors Associated with Student Performance in Auditing: An Empirical Study at A Residential University

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The grade the student intends to earn in the course seems to motivate students to improve performance but intention to take the CPA exam or attend graduate school do not. Number of work hours, job type, and course load do not have any negative effect on student performance, but accounting or business related job types have some significant positive effect. Students seem to over-estimate their writing, math, reading and listening abilities because none of these abilities is significantly associated with their performance. GPA and Intermediate Accounting II grade are strong predictors of student performance in the auditing course.

INTRODUCTION

Many prior research studies have explored various factors (e.g., general academic performance, aptitude, prior exposure to mathematics, prior exposure to accounting, age, gender, motivation, effort, computer games or applications or online homework management packages, and other intervening variables) that are associated with student performance in college-level courses. It is widely believed that motivation and effort significantly influence individual performance in college. However, as the review of prior research below indicates, very few studies have investigated their impact on required undergraduate Accounting courses. This study investigates the associations between selected motivation, distraction, self-perceived ability, and prior ability factors and student performance in the undergraduate Auditing course at a residential public university in the U.S.

As proxies for motivation, the authors use the grade the students intend to earn in the course, intention to take the Certified Public Accountant (CPA) examination, and intention to attend graduate school. As proxies for distraction, the authors use the number of hours of work per week, the type of job (whether or not it is related to accounting, or business in general) and the number of courses taken per semester. The study measures students' self-perceived abilities using their own self-reported math, writing, reading, and listening abilities. Students' prior abilities are measured by the actual grade earned in the Intermediate Accounting II course, which is a pre-requisite for the Auditing course, and by Overall Grade Point Average (OGPA.) The dependent variable, the student performance, is measured in two different ways:

the letter grade for the course, and the total overall points percent score (hereafter referred to as 'Points') for the course.

One of the motivations of this study is predicated on the belief that identifying factors that motivate students to perform well and factors that distract them from performing well may help us emphasize the motivation 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 make accurate assessment of their own writing, math, reading, and listening abilities. If they do, there should be significant association between their assessment of these abilities and their performance. If there is no significant association between their evaluation of these abilities and their performance, this would be an indication that the students are not making accurate evaluation of their abilities, which could be detrimental to their success in college.

The remaining parts of the paper present a review of prior research, discussion of the study objectives, variables and hypotheses, research methodology, and results. The paper ends with conclusions, recommendations, study limitations, and some suggestions for further research.

REVIEW OF PRIOR RESEARCH

Several prior studies have examined the association between various factors (e.g., general academic performance, aptitude, prior exposure to mathematics, prior exposure to accounting, motivation, effort, age, gender, and other intervening variables including metacognition and active learning approaches) and student performance in college-level courses.

The overall Grade Point Average (OGPA) is used frequently as a proxy for prior academic performance and aptitude. An overwhelming majority of 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, et al. 1991; Maksy and Zheng 2008; Maksy 2012 and 2014; Gupta and Maksy 2014; and Maksy and Wagaman 2012, 2013, and 2015, and Alanzi 2015). In the finance area, Paulsen and Gentry (1995); Chan, et al. (1997); Sen, et al. (1997); Didia and Hasnat (1998); Marks (1998); Van Ness, et al. (2000); Johnson, et al. (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. 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). Some exceptions to the above results include Gist, et al. (1996) who, using another measure, pre-university examination performance, find no significant association between academic performance and performance in accounting courses at the university level. Also, In Wales, while Lane and Porch (2002) find that performance in introductory accounting can partially be explained by reference to factors in the students' pre-university background they find that these factors are not significant when the student progresses to upper level accounting classes.

Auditing is a required course in the accounting major in most colleges and this major requires 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 accounting courses and the results are 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, Skew and Foley (1988) and Gull and Fong (1993) suggest that students with strong mathematical backgrounds outperform students with weaker mathematical backgrounds. Also, Sew, et al. (2014) report that prior

academic achievement, admission interview, critical thinking, and mathematical aptitude are significantly associated with successful academic performance in an undergraduate accounting degree at a Singapore University. Moreover, Alaniz and Afraid, (2017) find that accumulated quantitative knowledge has positive impact on academic performance in cost accounting. On the other hand, Gist, et al. (1996) do not report the same results. Furthermore, Gooney (2009) suggests that grades in secondary education mathematics are a very strong determinant of performance in accounting but only for non-accounting majors.

The majority of researchers observe strong associations between student performance in introductory accounting and their performance in non-introductory accounting courses, but there are some exceptions. For example, Canlas (1986) finds evidence that college-level exposure to accounting is positively related to student performance in the first MBA-level financial accounting course. Additionally, Tick ell 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. Maksy and Zheng (2008) and Maksy and Wagaman (2012, 2013, and 2015) find that OGPA and the grade in intermediate accounting II are strong predictors of student performance in advanced accounting, auditing, and senior seminar in accounting courses. Gupta and Maksy (2014) report that overall GPA and grades in Financial and Managerial Accounting courses are strong predictors of student performance in an Investment course. However, an exception to the above is Doran, et al. (1991) who report very surprising and counterintuitive result that performance in the introductory accounting course has a negative impact on performance in subsequent accounting courses.

Most prior studies about the influence of motivation or the combination of motivation and effort on student performance show positive effect. For example, Pascarella and Terenzini (1991) report that motivation and effort, among other factors, significantly influence students' performance in college. Paulsen and Gentry (1995) 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. Wooten (1998) finds that motivation significantly affects effort which in turn significantly affects performance in an introductory accounting course. Lane and Porch (2002) suggest that other important factors like student motivation may explain student performance. Gupta and Maksy (2014) use 'the grade the student intends to earn in the course' as a proxy for motivation and find it to be significantly associated with the student's performance in an investment course. Chan, et al. (2016) developed an educational computer program to enhance intrinsic motivation and performance in accounting courses. Their results showed higher intrinsic motivation than with the use of Blackboard and other traditional paper forms. Brown, et al. (2016) aimed to assess student perceptions on the implementation of guided reading questions to motivate and enhance student reading and adequate participation in class discussions or other course areas. They found that student perception results demonstrated that the guided reading questions had a positive impact on student motivation, reading comprehension, effort level, and understanding of the material before attending class. Poh-Sun, and Suay-Peng (2016) used a mobile gaming app, called Accounting Challenge (ACE), for learning accounting in a fun way, indicating that ACE won three international teaching awards. The tool is free and allows students to learn accounting outside a classroom setting. The authors report that the app received favorable reviews by users but they add that and although the app was downloaded 23,230 times with users in 90 countries at the time of their study, further investigations seem appropriate to identify and substantiate its academic benefits. Everaert et al. (2017) used first-year undergraduates to explore *deep learning* and *surface learning* (precedents and consequences of learning approaches, respectively) with motivation as precedent, and time spent and academic performance as consequences. They report that accounting students showed a higher score for deep learning over surface learning that lead to higher academic performance. The results also indicated a positive association between high intrinsic motivation and extrinsic motivation, and deep learning.

Prior studies about the effect of effort per se on student performance show conflicting results. For example, using self-reported data, Didia and Hasnat (1998) present very weak 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.

Using self-reported data, Nofsinger and Petry (1999) find no significant association between effort and performance in a Principles of Finance course. Also, Biktimirov and Klassen (2008) find weak association between hits to course management system and grade in finance course. On the other hand, Johnson, et al. (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. Also, Rich (2006), uses students' homework preparedness and unpreparedness in class as a proxy for effort and non-effort. He finds significant positive association for the former and negative association for the latter with exam percent.

Several prior studies also investigated various factors that distract students and cause them to have low performance or withdraw from college altogether. The results of some of these studies are expected but the results of some other studies are totally unexpected. For example, in the accounting area, Paisey and Paisey (2004) and Guney (2009) show that there is a clear positive association between attendance and academic performance in accounting courses. Paisey and Paisey also report that the most frequently cited reason for not attending classes was students' participation in part-time employment. Lynn and Robinson-Backmon (2005) find a significant adverse association between employment status and learning outcomes in upper-division accounting courses. Tessema, et al. (2014) report that if students work 10 hours or less per week they are more satisfied and have higher GPAs than students who work more than 10 hours per week. Alanzi (2015) finds significant association between class attendance (and college experience) and student performance in a Cost Accounting course at a university in Kuwait. Fortin, et al. (2016) investigated the reasons nontraditional students in several Quebec (Canada) universities withdraw from undergraduate accounting programs. As expected, they found that the reasons include: returning to school after working for some time, enrollment in a non-first choice programs, dissatisfaction with program choice and courses, and low grade point average (GPA), but the last was the main reason for student withdrawal. Other factors influencing withdrawal decisions pertained to time management and family responsibilities, especially for women. The authors suggested that students could benefit from university support that would enhance their learning strategies and improve student performance. Pavione, et al. (2016) identified a number of factors influencing the process of teaching and learning according to accounting students in the state of Minas Gerais, Brazil. Those factors were *teacher's didactics* (how the teacher leads the class, interacts with students and provides for a learning environment), *content structure of the course*, desire to learn the subject (personal motivation), and *library resources* (institution support). The four highest scores related to low student performance were *lack of interest*, and *lack of dedication outside the classroom* (students), and *does not intend to address the concerns of students*, and *not mastering the subject matter to be explained* (instructors).

On the other hand, Chan, et al. (1997) find no significant association between performance in a financial management course and attendance, credit hours enrolled, and number of weekly work hours. Didia and Hasnat (1998) find strong positive association between number of credit hours enrolled in the semester and course grades. Wooten (1998) finds no significant association between work, family, and extra-curricular conflicts and students' performance in an introduction to accounting course. Van Ness, et al. (2000) find no association 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 counter-intuitive 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. Rich (2006) reports significant negative association between class absences and being late to the class, and exam percent. Maksy and Zheng (2008), Maksy (2012 and 2014), Gupta and Maksy (2014), and Maksy and Wagaman (2012, 2013, and 2015) find no significant negative association between the number of hours of work per week and student performance in several accounting, auditing, and investment courses.

Age and gender are two demographic variables that receive less attention than those factors discussed above, but most of the studies related to age and gender produce conflicting results. Some studies show that younger students perform better than older students and other studies have the opposite results. Also,

some studies indicate that female students perform better than male students and other studies have the opposite results. For example, 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, Schrouder and Rhodd (2013) report that older and more experienced students perform better than younger and less experienced students in a Public Administration course. With respect to gender, Mutchler, et al. (1987) find that female students score significantly higher than male students. Also, Gracia and Jenkins (2003) find that there is a significant difference in the performance in favor of female students over male students in Wales. Almunals, et al. (2014) report that females perform better than males in the accounting major. They also find other factors significantly associated with the performance of students majoring in accounting including high school major (science majors perform better than humanities majors), marital status (married students perform better than single students), frequency of doing homework, class participation, peer interaction, and number of days studying before the exam (the higher the frequency the higher the performance). However, some studies indicate that male students perform better than female students, but the results are either insignificant (for example, Lipe 1989) or only hold true for introductory courses (for example, Doran, et al. 1991). Sen, et al. (1997) show that female student performed worse than male students in principles of finance courses at two different mid-western universities.

Most of the studies show that the age and gender of students have no effect on students' performance. For example, Chan, et al. (1997), Didia and Hasnat (1998), and Van Ness, et al. (2000) find no significant association between grade in an Introductory Finance course and gender or age of students. Alanzi (2015) finds that gender, age, nationality, scores and majors in high school, grades in prerequisite courses and overall GPA in college, have no significant association with student performance in Cost Accounting. Jenkins (1998) and Lane and Porch (2002) conclude that age is not a significant determinant of performance in auditing and management accounting courses. Tyson (1989) and Buckless, et al. (1991) demonstrate that gender effect disappears after controlling for general academic ability. Henebry and Diamond (1998) and Johnson, et al. (2002) also do not find any significant association between a finance principles course score and gender of students. However, Henebry and Diamond (1998) 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. Gammie, et al. (2003) find very little indication of performance differential between males and females throughout the degree program.

There has also been increased interest in studying the influence of intervening variables on student performance. 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. In recent years, several prior studies showed that metacognition attributes have positive effect on student 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. Paulsen and Gentry (1995) 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. Gracia and Jenkins (2003) observe that students who actively demonstrate commitment and self-responsibility towards their studies tend to do well in formal assessments. Lynn and Robinson-Backmon (2005) indicate that a student's self-assessment of course learning objectives is significantly and directly related to grade performance. Schleifer and Dull (2009) address metacognition in students and find a strong link between metacognitive attributes and academic performance. Lin, & Songtao (2016) examined the impact of metacognitive awareness (measured by Learning Smart, an online learning tool supplemented with the textbook) on class performance in financial accounting courses and found that students with greater metacognitive awareness performed better.

Several prior studies also investigated the effect of *active learning* versus *passive learning* approaches on student performance with the majority showing that active learning approaches have much more positive effect on student performance than passive learning. For example, Andres (2017) examined

active learning (which was assessed using Kolb's experiential learning, Pintrich's student learning motivation, and cognitive load theories) and found that active learning was a positive predictor of course grade, reducing the negative relationship between course difficulty on learning motivation and course grade. Dutra de Oliveira Neto, et al. (2017) investigated the performance of students from a public university in Brazil that used the *flipped classroom* and found that it improved student performance and that students approved of it as an appropriate teaching strategy. Riley and Ward (2017) examined the effectiveness of active learning, cooperative active learning, and passive learning methods in an accounting information systems course. Their results indicated that active learning enhanced student performance, especially for those students who worked individually. Wynn-Williams, et al. (2016) examined deep and surface approaches to learning in a university intermediate-level accounting class that uses business cases in group presentations. Their results supported the claim that students focus on what is required, hence, they concluded that if deeper approaches to learning are desirable, assessments would likely need to reward such behavior.

While prior research has been largely inconclusive or replete with conflicting results, it is not the purpose of this study to resolve all these conflicts. The authors' objective, in 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, the authors try, in this study, to test whether some new selected motivation factors affect student performance in the Auditing course. The study also looks at several factors which are commonly viewed as possibly distracting students from performing well and tests whether they indeed are negatively affecting student performance. Moreover, the study investigates the impact of four self-perceived abilities factors and student performance and whether students make accurate assessment of those abilities. Furthermore, the study investigates the impact of two specific measures of prior abilities on student performance, and also uses them as control variables while testing for the association between motivation, distraction, and self-perceived abilities factors and student performance in the Auditing course.

STUDY OBJECTIVES AND HYPOTHESES

The *first objective* of this research is to study the association between three selected motivation factors (the grade the student intends to earn in the course, the student's intention to take the CPA examination, and the student's intention to attend graduate school), and the student's performance in the Auditing course at a residential public university in the U.S. The authors hypothesize that there are positive and significant association between those motivation factors and student performance. That is, students who intend to earn higher grades; take CPA exams, or attend graduate school, are motivated to perform well and do perform well in the course to achieve their intentions. Coe (2016) surveyed upper-level accounting students from six different academic institutions in Iowa and Illinois about the several factors that may affect their intention to sit for the CPA exam as soon as they are eligible to do so. He found that that factors with positive associations were: the option to sit for the CPA exam after completing 120 credit hours of education versus 150 credit hours; self-efficacy; the attractiveness of passing the CPA exam; perception of social support from family and friends; access to a role model who is a CPA; perceptions of psychological and functional support from faculty; and protean career attitude. In this study we ask the students whether they intend to sit for the CPA exam. We assume that those who answer "yes" instead of "no" or "maybe" are motivated to gain some or all of the factors indicated by Coe (2016). Similar argument may be made for intention to attend graduate school because most of these factors may be gained by attending graduate school.

The *second objective* is to study the association between three distraction factors (the student's number of working hours per week during the semester, the student's number of courses taken in the semester, and the student's job type, i.e., whether or not it is related to accounting, or business in general) and the student's performance in the Auditing course. Intuitively, the higher the number of work hours per week, the less time the student will have to study for the Auditing course resulting in lower course grade. Furthermore, it is likely that the performance of a student taking higher number of courses 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 accounting, or business in general, the student's grade in the Auditing course will be lower than if the student's job is related to one of these areas. In light of the prior discussion, the authors hypothesize that if the student's number of work hours per week is higher, and/or the number of courses taken in the semester is higher, and/or the student's job is not related to accounting, or business in general, there will be a significant *negative* association between these distraction factors and the student's performance in the Auditing 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, and vice versa, so that there is no negative effect on performance. For this reason, the authors test the effect of each distraction factor on student performance while controlling for the other two factors. The authors also investigate the associations among the distraction factors themselves.

The *third objective* is to study the associations between students' performance in the Auditing course and their current self-perceived abilities in writing, math, reading, and listening. A positive association between self-reported abilities and performance may indicate that students make reasonably accurate assessment of their abilities. A lack of positive and significant association 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, the authors instructed them 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. The authors assume that the students followed those instructions and, thus, the authors hypothesize positive and significant associations between students' self-perceived abilities and their performance in the Auditing course.

The *fourth objective* is to study the association between students' performance in the Auditing course and their grade in the pre-requisite Intermediate Accounting II course, and their overall GPA. Based on the results of many prior studies, the authors hypothesize that there are positive and significant associations between these prior actual abilities and student performance. Thus, the hypotheses are that students who earned higher grades in Intermediate Accounting II, or have high GPAs, will earn higher grades in the Auditing course, and vice versa.

STUDY DEPENDENT VARIABLES

In addition to the 12 independent variables described under the study objectives above, the study uses two dependent variables. Initially, the authors used only the letter grade in the course (A, B, C, etc.) as the student performance dependent variable. However, the authors 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. As a result, the authors also decided to use overall points percentage earned by a student in the course as a dependent variable.

STUDY HYPOTHESES

The study tests one hypothesis for each independent variable. The formal statements of all 12 hypotheses are presented (classified under four categories of factors) in APPENDIX A. To prevent redundancy, each hypothesis is presented in the alternate form only.

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, the 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 certificate of completion of the course was 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.' The survey instrument is available from the authors upon request.

Study Sample:

In spring 2017, the authors were able to collect the data on the survey instrument from 52 of 54 students enrolled in the two sections of the undergraduate Auditing course offered at a public residential school. The university enrolls about 9,000 students, and the College of Business enrolls about 1,400 students. It is a state-supported university that has public access as a major part of its mission statement. It is located near one of the largest cities in the United States. The instructor teaching both sections of the course (who is one of the authors) provided the data representing the two dependent variables (the 'letter grade,' and 'overall points percentage') using only students' ID numbers for confidentiality purposes.

Two different graduate students entered the data from the student questionnaire on two separate Excel spreadsheets. The authors matched the two spread sheets and resolved any discrepancy by referring to the original questionnaire. This virtually eliminated any data entry errors. Furthermore, the authors verified some of the independent variables (e.g., overall GPA, grade in Intermediate II) with the school records using only students' ID numbers. There were very minor differences in the GPA most of which were due to the fact that some students rounded their GPA from two decimal places to one decimal place. The authors wanted to use two decimal places for all students.

Data Analysis:

To test the formulated hypotheses in APPENDIX A, the study uses one-way analysis of variance (ANOVA), Pearson and Spearman's correlation coefficients, partial correlations, and ordinary least square linear regressions.

STUDY RESULTS

Table 1 presents descriptive statistics (e.g., the minimum and maximum value, the mean, and the standard deviation) for each of the 14 variables of the study. That Table shows an average grade in the Auditing course of 2.67 which is slightly higher than the average grade of 2.56 in the Intermediate Accounting II course (which is a pre-requisite for the Auditing course) but lower than the overall GPA of 3.07, and average Intended Grade of 3.23. In comparison, Didia and Hasnat (1998)' study of performance determinants in a finance course report a Financial Management course grade 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 of 0.11 between the average course letter grade and the average Intermediate Accounting II pre-requisite course grade is much smaller than the comparable difference of 0.86 reported by Didia and Hasnat (1998). Also, the difference of 0.40 between the average course letter grade and overall GPA is lower than the difference of 0.76 reported by Didia and Hasnat. No comparable data is available in the literature for the difference between the average grade in the course and the average Intended Grade.

Following is an analysis of the study results by the type of factors investigated (motivation, distraction, self-perceived abilities, and prior ability) taking all observations into account.

Motivation Factors Associated with Student Performance

Of the three motivation variables discussed in H₁ to H₃, only Intended Grade (IG) is significantly associated with student performance (however defined) based only on Pearson and Spearman's Correlations at the .05 significance level. However, when student performance is defined as Points, Pearson's correlations significance is weakened to the only at .10 level. The other tests used in the study (One-Way ANOVA and Regression Analysis) show no significant association between IG and student performance, however defined. Furthermore, when the authors controlled for the prior ability factors (Intermediate Accounting II grade and overall GPA) the significant associations between IG and student performance shown under Pearson and Spearman's correlations totally disappeared (See Tables 2 to 5). Intention to take the CPA exam or attend graduate school are not significantly associated with student performance, however defined, under all tests. Thus, the authors can generally state that while prior studies [e.g., Maksy and Wagaman (2012, 2013, and 2015), Gupta and Maksy 2014, and Maksy 2014] showed significant association between intended grade and student performance in other upper level accounting and investment courses, this study does not show that association.

Distraction Factors Associated with Student Performance

None of the three distraction factors has any significant negative association with student performance (however defined) under any tests. The regression test (Table 5) showed that there is some significant *positive* association, but only at the .10 significance level, between Job Type (if it is accounting or business related) and student performance defined only as the Letter Grade.

Table 10, Part A, indicates that each distraction factor has no significant *negative* effect on student performance (however defined) even when the authors control for the other two distraction factors. Table 10, Part B, indicates that controlling for the other two distraction factors as well as the two prior actual ability variables, the results remain the same. These results are consistent with the results reported by Maksy and Zheng (2008), Maksy (2012 and 2014), Gupta and Maksy (2014), and Maksy and Wagaman (2012, 2013, and 2015).

Self-Perceived Abilities Factors Associated with Student Performance

Of the four self-perceived ability factors, only Math has significant association (at the .05 level) with student performance (however defined) under all tests. One minor exception to that statement is that when student performance is defined as "Grade" the significance level is stronger (at .01) under the Spearman correlation test, and when student performance is defined as "Points" the significance level is weaker (at .10) under the regression test. Another minor exception is that Writing and Reading have significant association with student performance (at .10 when it is defined as "Grade") but no significant associations at all when student performance is defined as "Points." Furthermore, after controlling for the two prior ability factors the significant associations between Math and student performance shown under the correlations tests totally disappeared.

Prior Actual Ability (Control) Factors Associated with Student Performance

The ANOVA test (Table 2) and Pearson and Spearman correlations (Table 3) show significant associations (at the .01 level) between the Intermediate Accounting II grade and student performance, however defined. The regression tests (Table 5) show the same significant association, but at the .05 level when student performance is defined as "Grade" and at the .10 level when student performance is defined as "Points." While the ANOVA test (Table 2) does not show any significant associations between overall GPA and student performance, however defined, Pearson and Spearman correlations (Table 3) show significant association (at the .01 level) between Overall GPA and student performance, however defined. The regression tests (Table 5) show the same significant association (at the .01 level when student performance is defined as "Grade") but at the .10 level when student performance is defined as "Points."

The strong significant associations between the Intermediate II grade as well as overall GPA and student performance in this study are consistent with the results reported by Maksy (2012), Maksy and Wagaman (2012 and 2013).

CONCLUSIONS AND RECOMMENDATIONS

One general conclusion of the study (which is in disagreement with most prior studies) is that students who reported that they intend to a high grade (such as an A or at least a B) did not perform well enough to earn those high grades. As Table 1 shows, there was quite a disparity between average Intended Grade of 3.23 and average letter grade of only 2.67. Speaking of motivation, all tests also show that intention to take the CPA examination and intention to attend graduate school do not seem, in this study, to be motivating factors for the students to perform well in the Auditing course.

In light of the above general conclusion, the authors recommend that accounting faculty should think of other factors (other than those tested in this study) to motivate students to put the time and effort to study hard and to do well in the Auditing course. Accounting researchers should also think of other motivating factors and test whether they are indeed motivating the students to perform well in the Auditing course at a residential university.

Another general 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-accounting, or non-business- related jobs, and number of courses 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 Auditing course. There is some evidence, albeit weak, that students who work in accounting or business related jobs have better performance in Auditing than students who work in non-accounting or non-business related jobs, but that evidence was reported only under the regression test and only when student performance is defined as "Grade."

In light of the above general conclusion, the authors recommend that accounting faculty need not encourage their students to work as few hours per week as possible to earn high grades in the Auditing course. Perhaps, accounting faculty should advise their students to try to work in a job that is accounting or business related before they accept the first job that becomes available even if it is not related to accounting or business in general. Furthermore, if students have to work a significant number of hours anyway to support their families, accounting faculty need not encourage those students to take as few courses per semester as possible to earn high grades in the Auditing course. Accounting faculty, when advising students with poor performance, need to think of causes (e.g., poor study habits, poor time management, etc.) other than too many working hours per week or too many courses taken per semester to pinpoint to those students.

A third general conclusion of the study is that, other than Math and, to a very limited extent, Writing and Reading, students' estimate of their own current perceived abilities have no significant association with students' performance in the Auditing course. This is an indication of the possibility that students are providing inaccurate evaluation of their own abilities in these areas. The students' inability to accurately evaluate their abilities can have negative consequences on their performance because they may not seek help in the areas they have some weakness in.

In light of this general conclusion, the authors recommend that the college of business faculty in general, and accounting faculty in particular, should encourage students to make more accurate evaluations of their writing, reading, and listening abilities and to seek help for the areas they have some weakness in. Another recommendation for faculty is to encourage their students to listen attentively to the lecture (and ask questions if they don't understand something the instructor has said) and don't be distracted by using their cell phones and/or laptops if allowed in class.

As expected and as shown in prior studies with respect to other courses, a fourth general conclusion of the study is that students with high prior actual ability end up earning high grades in the Auditing course. Specifically, the study provides evidence that there is a strong significant association between

students' grades in the Intermediate Accounting II course and Overall GPA and their performance in the Auditing course.

In light of this general conclusion, the authors recommend that accounting faculty encourage their students to study hard to earn good grades in all courses (including Intermediate Accounting II) to improve their GPA by emphasizing that research shows that students with high overall GPA earn high grades in the Auditing course. Again, the authors realize 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 and it is possible that the results may not be generalizable to commuter schools. Consequently, another suggestion for further research is to replicate the study at a commuter school. A third limitation is that the study sample is somewhat small relative to the number of independent 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.

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APPENDIX A
STUDY FORMAL STATEMENTS OF HYPOTHESES

Motivation Factors

H₁: There is a significant positive association between the grade the student intends to earn in the Auditing course and student performance in that course.

H₂: There is a significant positive association between the student's intention to take the CPA exam and student performance in the Auditing course.

H₃: There is a significant positive association between the student's intention to attend graduate school and student performance in the Auditing course.

Distraction Factors

H₄: There is a significant negative association between the student's average number of hours of work per week and student performance in the Auditing course.

H₅: There is a significant negative association between the student's job type (if it is not related accounting, or business in general) and student performance in the Auditing course.

H₆: There is a significant negative association between the number of semester courses a student is taking and that student's performance in the Auditing course.

Self-Perceived Ability Factors

H₇: There is a significant positive association between the student's self-reported writing ability and student performance in the Auditing course.

H₈: There is a significant positive association between the student's self-reported math ability and student performance in the Auditing course.

H₉: There is a significant positive association between the student's self-reported reading ability and student performance in the Auditing course.

H₁₀: There is a significant positive association between the student's self-reported listening ability and student performance in the Auditing course.

Prior Ability Factors

H₁₁: There is a significant positive association between the grade the student earned in the Intermediate Accounting II course and student performance in the Auditing course.

H₁₂: There is a significant positive association between the student's overall GPA and student performance in the Auditing course.

APPENDIX B
TABLES

TABLE 1
DESCRIPTIVE STATISTICS OF THE STUDY VARIABLES

	N	Minimum	Maximum	Mean	Std. Deviation ²
Letter Grade ¹	52	0	4	2.67	.901
Overall Points (in %)	52	23.28	95.39	80.07	11.199
Intended Grade ¹	52	2	4	3.23	.546
CPA ²	52	1	3	2.23	.675
Grad Sch ³	52	1	3	1.90	.799
Job Hours	52	0	50	20.48	13.573
Job Type ⁴	52	0	3	1.54	1.093
Course Load	52	1	6	4.44	1.335
Writing Ability ⁵	52	2	4	3.12	.704
Math Ability ⁵	52	2	4	3.46	.641
Reading Ability ⁵	52	1	4	3.17	.734
Listening Ability ⁵	52	2	4	3.04	.740
ACC 322 Grade ¹	52	1	4	2.56	.916
OGPA (out of 4.0)	52	1.73	4.00	3.07	.612

¹A = 4.00; B = 3.00; C = 2.00; D = 1.00; F = 0.00.

²No = 0; Maybe = 1; Yes = 2

³No = 0; Maybe = 1; Yes, at this school = 2; Yes, at another school = 3

⁴Other = 1; Business Related (but not accounting or finance) = 2; Finance related = 3; Accounting related = 4

⁵Very Good =4; Good =3; Average =2; Poor =1

TABLE 2
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 %	
Independent Variables	DF	F Value	Sig.	F Value	Sig.
Intended Grade	2/51	2.170	0.125	1.998	0.146
CPA	2/51	2.114	0.132	1.566	0.219
Grad School	2/51	0.010	0.990	0.148	0.863
Job Hours	16/51	0.933	0.543	1.103	0.389
Job Type	3/51	0.111	0.953	0.327	0.806
Course Load	5/51	0.522	0.759	0.327	0.894
Write	2/51	2.874	0.066*	2.099	0.133
Math	2/51	4.718	0.013**	3.625	0.034**
Read	3/51	2.581	0.064*	1.730	0.173
Listen	2/51	0.191	0.827	0.417	0.661
ACC 322	3/51	6.623	0.001***	7.210	0.000***
OGPA	44/51	0.910	0.619	1.845	0.202

*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 3
PEARSON/SPEARMAN CORRELATION COEFFICIENTS^a

	Letter Grade	Points	IG	CPA	Grad Sch	Job Hours	Job Type	Course Load	Write	Math	Read	Listen	ACC 322	OGPA
Letter Gr	.894***	.276**	.126	.003	.123	.030	.334**	.028	.534***	.592***				
Points	.930***	.239*	.097	-.009	.070	-.043	.278**	.008	.513***	.470***				
IG	.288**	.330**	.119	.187	.395***	.235*	.362***	.192	.443***	.218				
CPA	.145	.124	.149	.151	.102	.149	.157	.155	.295**	.240*				
Grad Sch	-.052	-.099	.160	.158	.004	.090	-.103	-.105	.021	.042				
Job HRS	-.047	-.124	-.044	-.203	-.194	.062	.136	-.320**	.013	-.116				
Job Type	-.031	-.142	.039	.012	.025	.487***	.198	-.070	.262*	.094				
C Load	.122	.085	.382***	.104	-.119	-.235*	.124	.221	.259*	.178				
Write	.042	-.068	.242*	.181	.064	.108	.140	.530***	.020	.092				
Math	.359***	.340**	.399***	.223	-.076	.133	.185	-.090	.334**	.176				
Read	.058	.014	.218	.122	-.155	-.230	.540***		.276**	.121				
Listen	.095	.204	.374***	.213	.033	-.367***	.170	.264*	-.001	.215				
ACC 322	.521***	.549***	.461***	.288**	.010	-.009	.011	.011	.239*	.527***				
OGPA	.594***	.538***	.276**	.263*	.036	-.113	.094	.127	.198	.530***				

a Pearson correlations are above the diagonal and Spearman correlations are below the diagonal.

*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 PARTIAL CORRELATION COEFFICIENTS (CONTROLLING FOR ACC 322 AND OGPA)

	Letter Grade	Points	IG	CPA	Grad Sch	Job Hours	Job Type	Course Load	Write	Math	Read	Listen
Letter Gr												
Points	.848***											
IG	.067	.022										
CPA	-.093	-.099	-.012									
Grad Sch	-.055	.032	.199	.149								
Job HRS	.038	-.049	-.086	-.227	-.075							
Job Type	-.160	-.165	-.077	-.034	.036	.501***						
C Load	-.045	-.093	.325**	.023	-.003	-.199	-.105					
Write	-.021	-.092	.256*	.141	.086	.077	.047	.215				
Math	.222	.142	.259*	.068	-.117	.142	.125	.044	.141			
Read	-.032	-.031	.220	.150	-.111	-.305**	-.065	.224	.524***	-.097		
Listen	-.115	-.116	.308**	.109	.032	-.404***	-.268*	.167	.170	.284**	.272*	

*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 5
REGRESSION ANALYSIS
(All numbers are for 55 Observations)

Independent Variables	Dependent Variables			
	Letter Grade		Overall Points %	
	t Coeff.	Sig.	t Coeff.	Sig.
Constant	-0.555	0.582	3.807	0.000***
IG	0.263	0.794	0.031	0.975
CPA	-0.660	0.513	-0.883	0.383
Grad Sch	0.227	0.822	0.815	0.420
Job Hours	0.140	0.889	-0.347	0.730
Job Type	-1.713	0.095*	-1.459	0.153
Course Load	-0.402	0.690	-0.665	0.510
Write	-0.347	0.731	-0.676	0.503
Math	2.110	0.041**	1.915	0.063*
Read	0.660	0.513	0.842	0.405
Listen	-1.696	0.098*	-1.691	0.099*
ACC 322	2.174	0.036**	2.600	0.013**
OGPA	3.357	0.002***	1.968	0.056*
Adj. R ²	0.373		0.255	
F	3.529	0.001***	2.451	0.017**

*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 6
PARTIAL CORRELATION COEFFICIENTS OF SELECTED DISTRACTION FACTORS
WITH STUDENT PERFORMANCE^a

Dependent Variable	<i>Part A</i>				<i>Part B</i>				
	Letter Grade		Overall Points %		Letter Grade		Overall Points %		
	<i>Coef.</i>	<i>Sig.</i>	<i>Coef.</i>	<i>Sig.</i>	<i>Coef.</i>	<i>Sig.</i>	<i>Coef.</i>	<i>Sig.</i>	
Distraction Factor					Distraction Factor				
JHours	.004	.980	-.060	.681	JHours	.130	.379	.020	.891
JType	.004	.976	.023	.872	JType	-.207	.157	-.164	.266
CLoad	.121	.403	.056	.699	CLoad	-.041	.784	-.108	.465

A Part A: While controlling for the other two distraction factors.

Part B: While controlling for the other two distraction factors and prior actual ability factors (ACC 201, ACC 202 & OGPA)