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DETERMINANTS OF STUDENT PERFORMANCE IN AN UNDERGRADUATE FINANCIAL ACCOUNTING CLASS

*Donna Ramirez Harrington **

Assistant Professor
Tel: (519) 824-4120; Ext: 53855
Fax: (519) 767-1510
Email: dramirez@uoguelph.ca

Kumuduni Kulasekera

Graduate Research Assistant
Tel: (519) 824-4120; Ext: 52587
Fax: (519) 767-1510
Email: kkulasek@uoguelph.ca

Rick Bates

Associate Professor
Tel: (519) 824-4120; Ext: 53592
Fax: (519) 767-1510
Email: rbates@uoguelph.ca

Maury Bredahl

Professor
Tel: (519) 824-4120; Ext: 53532
Fax: (519) 767-1510
Email: mbredahl@uoguelph.ca

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**DEPARTMENT OF AGRICULTURAL ECONOMICS AND BUSINESS
UNIVERSITY OF GUELPH
GUELPH, ONTARIO**

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* Corresponding author

Mailing address of all authors: J.D. Maclachlan Building, Department of Agricultural Economics and Business,
University of Guelph, Guelph, Ontario, Canada N1G 2W1

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Abstract

This study investigates the effects of class size, high school accounting, aptitude and attitude on learning, measured by the difference between post-test and pre-test scores, in an undergraduate financial accounting class, after controlling for students' major and semester level. Statistical analysis showed that scores of students in small classes improved by 48%, while scores of students in the large classes improved by 6% percent, implying a decline in learning by 88% by shifting to larger classes. High school accounting was found to improve pre- and post-test scores but the improvement on their post-test scores was significantly lower, implying a diminishing effect of high school accounting on performance as the complexity of the course material increases. We also found that midterm grade (aptitude) and changes in perception about the relevance of the class on business-related issues (attitude) motivate learning.

INTRODUCTION

The relationship between class size and student performance has received widespread attention in the education literature and persists to be a widely debated and investigated topic. While large classes are perceived to be detrimental to learning and student performance, it is a common recourse for academic units which are constrained by budget and which are experiencing increasing student enrollment. The Department of Agricultural Economics and Business of the University of Guelph experienced both changes in its Bachelor of Commerce (BComm) program, in addition to the restructuring of secondary education in Ontario from a five year program to four years. This restructuring resulted in the “Double Cohort” of two high school graduating classes seeking University entrance in the same year in 2004. These three major changes forced a change in the delivery strategy of the first BComm financial accounting core course from small sections to a single large section.

Financial accounting was previously taught in multiple discussion-oriented sections of 50-60 students (12 sections in Winter 2004). Starting Fall 2004, course format was changed to a single large lecture section (one section of about 500). Because of long-term planned growth in the Bachelor of Commerce (BComm) program and because financial accounting is the first of a series of accounting courses required for BComm majors, it is imperative to investigate whether this permanent shift in class size will adversely student performance in financial accounting, which may then have an effect on subsequent higher level accounting courses for which financial accounting is a prerequisite.

The effect of class size on student performance has been widely investigated in different disciplines and there are different theories for whether the effect of large classes will be positive or negative. McKeachie (1986) argues that while instructors are believed to be more motivated to prepare for a large class, small classes may be viewed by students as more conducive for interaction and participation. The relative strengths of these two effects may explain the divergence in the results in the existing literature. Further, it illustrates the fine balance between instructor and student motivation and attitudes, and these may be confounded by the effect of other class-specific factors which make the link between class size and learning more complex. Thus, any research that analyzes the effect of class size on learning needs to control for this wide range of class-, and student- specific characteristics.

This research seeks to determine whether student learning in a financial accounting class is higher among those in small sections than those in large sections while controlling for various other factors that may affect student performance. More specifically, this study uses the difference between post test and pre-test scores as measure of student performance and attempts to explain it using class size, high school accounting background, student aptitude, student attitude, semester level, and major.

This study contributes first to the literature on the impact of class size on student performance and can clarify the relation of class size and learning in the case of a knowledge-based course such as financial accounting. Second, this study also incorporates past accounting background as a direct measure of past specific knowledge or skill and we find that it has a positive effect on performance. Third, this study attempts to verify whether the effect of high

school accounting on college level accounting endures or whether the effect diminishes with time. Fourth, we recognize that both objective and subjective factors may matter. We construct a proxy for a student's aptitude as a measure of his or her actual or tangible ability and compare its effect on learning with a subjective factor, a student's disposition or mind-set about the class. Finally, and on a more practical note, knowledge of class characteristics (class size), student's stock of knowledge (high school accounting) as well as objective (aptitude) and subjective (attitude) factors can aid teachers and administrators in identifying areas where the learning environment can be improved.

The paper proceeds as follows. The next section provides a literature review and the hypotheses to be tested in this study. Then, the data and variable description are described. Next, the results are presented and discussed. The final section concludes the paper and provides implications.

LITERATURE REVIEW AND HYPOTHESES

There are many existing studies that investigate the determinants of student performance in accounting classes. Foremost among these factors is class size and past accounting background. The results of existing research that investigated whether large class results in low performance and low improvement in tests scores have been mixed. Naser and Peel (1998) used the students' marks, comprising a weighted average of three mid-term tests and the final examination in an accounting principles course as a measure of student performance and found that those who considered their class size to be relatively large obtained significantly lower examination marks for the course. In contrast, Baldwin (1993) used scores in two of one-hour mid-term examinations, and a final exam and found no evidence to indicate whether teaching introductory financial accounting in mass-lecture sections had any effects on student performance compared to that with smaller classes.

Further complicating the class size and performance link are findings by Buehlmann and Techavichit (1984) and Hill (1998) that class size may actually have a positive effect when other factors are controlled for. Buehlmann and Techavichit (1984) observed successful performance of students in large classes, and concluded that student success in large sections of an accounting principles course could be attributed to preferences for and experience with large sections in addition to traditional factors such as academic performance (measured by grade point average, GPA) and qualifications. Hill (1998), on the other hand, found no significant independent effect of section size on final examination percentage and overall percentage, but that large classes outperformed students in small classes when other explanatory variables such as attendance and academic performance were considered. However, he found that students in the large class attended fewer class sessions. Despite this mixed evidence, we postulate that for a knowledge-based and applied course such as financial accounting, large classes are detrimental to learning, measured by the difference in pre-test and post-test scores, and develop the following hypothesis:

Hypothesis 1. The difference between pre and post test scores is significantly higher among students in small sections than those in large sections.

In addition to class size, student performance in the accounting education literature has been analyzed in the context of how it responds to past accounting background. Prior accounting knowledge has been found to be an important determinant of student performance in accounting courses by many studies (such as Eskew and Faley, 1988; Farley and Ramsay, 1988; Mitchell, 1988; Doran et. al., 1991; Turner, Holmes and Wiggins, 1997; Naser and Peel, 1998; Krausz et al., 2001). Eskew and Farley (1998) examined the test performance in the introductory accounting course and found that high school book keeping background is a positive determinant of performance in addition to the other factors such as aptitude and effort towards better performance of the students. Farley and Ramsay (1988) found that previous knowledge of high school accounting positively affects student performance in the first year of accounting at the tertiary level. Mitchell (1988) similarly reported that students with an accounting background performed significantly better than those who do not have the prior knowledge of accounting. He demonstrated positive significant mean marks of quantitative assessment for students with high school accounting and significantly better results in quantitative work throughout the year by students possessing a superior high school accounting grades. Doran et al. (1991) extended Eskew and Farley's work by including a second accounting course along with the first course and his results were consistent with the findings of Eskew and Farley. Turner, Holmes and Wiggins (1997) showed that students' initial intermediate test score, their GPA, major and introductory accountancy course are significantly associated with the final grade achieved in Intermediate Accountancy I. Naser and Peel (1998) showed that student who had previous accounting experience and who had completed a more advanced university mathematics course performed sufficiently higher level Krausz et al. 2001 reported that higher GMAT scores (math portion), work experience and prior accountancy knowledge led to better performance. Given the preceding evidence, we posit the following hypothesis:

Hypothesis 2. Students who have taken more high school accounting courses will have higher pre and higher post-test scores than those without high school accounting.

There is also considerable literature investigating the effect of accountancy knowledge on student performance over time and how it tends to lose its advantage among students. Jacoby (1975), Baldwin and Howe (1982), and Bergin (1983) investigated the hypothesis that students with prior accounting knowledge did better early in the course, but performed worse subsequently. Jacoby (1975) reported that high school accountancy gave students a temporary advantage in early assessments (computational & conceptual), but this effect did not endure for the remainder of the course. Baldwin and Howe (1982) also found that students with high school accounting scored higher on early exams & lower in later exams. However, Baldwin and Howe (1982) found that prior knowledge did not make any significant difference to multiple choice question or overall test scores. Bergin (1983) found that students with high school accounting performed better at the beginning of the course, but that performance got worse when material begins more difficult. He further showed that there was no significant difference in the final score within two groups. Koh and Koh (1999) concluded that students with prior high school accounting knowledge did not perform as well as students without prior knowledge. Further, both the quality and quantity of high school accounting was also found to matter. Loveday (1993) found that prior accounting knowledge had a significant impact only if what was studied at high school was directly relevant to what was studied at the university. Similarly, Schroeder

(1986) found that to have any effect, prior exposure must be of two years' duration. Thus, we postulate that:

Hypothesis 3. The effect of high school accounting background will be higher on the pre-test than on the post-test score.

Aside from field-specific knowledge such as accounting background, overall measures of aptitude and skill were also found to be primary factors that improve student performance. Buehlmann and Techavichit (1984) used GPA, while Baldwin (1993) used both GPA and credits earned prior to enrolling in the course as measures of student aptitude and both found that GPA and credit earned are significantly associated with student performance. Koh and Koh (1999) also showed that those with better academic aptitude and mathematics background performed significantly better in the accountancy degree program. Ward et al (1993) investigated whether African-American students composite and individual math and English ACT scores were associated with performance in accounting principles courses and found that course grade increases with composite ACT score. Gist et al. (1996) investigated the relationship between accounting principles grades and Scholastic Aptitude Test (SAT) scores, college GPA and performance in mathematics and found that the factors associated with course grade in order of relative importance were cumulative GPA at the beginning of the course, SAT score and having received a grade of C or better in calculus. Generally, these studies assert that student-specific characteristics that proxy for a student's overall aptitude and skills in accounting may enhance his/her performance on college level accounting. Because we do not have more high school level measures of performance and because we are concerned with the difference in the scores between post- and pre-test, we posit the following hypothesis to test for the effect of student aptitude on performance:

Hypothesis 4. The higher a student's overall aptitude for accounting measured by his midterm grade, the greater will be the improvement in test scores from pre-test to post-test.

Lastly, subjective factors such as attitude and motivation also play a role in learning. The existing studies that capture the role of perception and attitude have attempted to explain a wide variety of issues ranging from performance in an accounting class to decision to major in accounting, and the evidence from various studies have been mixed. Naser and Peel (1998) concluded that students' perceptions on the course or instructor together with the difficulty and the complexity of the course or examination and also the degree to which students rely on their own efforts are significantly associated with accountancy principles examination performance. Gracia and Jenkins (2002) obtained similar results in a study that account for the role of personal factors in the form of encouragement from family in class performance. They found that students who had passed their course cited some kind of encouragement by family and friends to attend the university and to major in accounting while students who failed a course had less clear reasons for their choices. In contrast, Christensen, Fogarty, and Wallace (2002) who examined the association between a student's ability to assess his/her mid-year course performance (self-efficacy) and the student's exam and final course grades found that students with more conservative grade estimates (i.e., more pessimistic or less optimistic) perform better on exams and overall. The role of subjective factors not commonly used in the literature is further

emphasized by Wooten's study (1998) that describes a model of student performance and enumerates nine factors that influence performance, which is a combination of objective and subjective factors: (1) aptitude; (2) grade history; (3) student's expectations; (4) effort; (5) motivation; (6) learning environment; (7) family activities; (8) extracurricular activities; and (9) work activities. He concluded that for traditional students (24 years old), effort was influenced by both objective and subjective factors such as grade history, motivation, and family activities, while for nontraditional students (>25 years old), subjective factors dominate, i.e., effort was significantly influenced only by motivation. The role of attitude and perception is further emphasized in the literature dealing with the choice of majors. Saemann and Crooker (1999) found that the students' perceptions of precision and thoroughness in the profession and the heavy work load in the introductory course discouraged creative personalities from pursuing an accounting major. Geiger and Ogilby (2000) investigated how students perceived the first accounting course and whether that perception affected a student's decision to major in accounting. Geiger and Ogilby found that perceptual positions were not related to intended major (major at the end of the semester). Due to the pervasiveness of the evidence supporting the role of subjective and attitudinal factors, we postulate that:

Hypotheses 5. Students who have experienced an improved appreciation for the course will have a greater improvement in test scores.

The description of the data as well as the construction of variables for that will be used to test these hypotheses are described in detail in the following section.

EMPIRICAL ANALYSIS

Data for the analysis was collected from students who are enrolled in financial accounting in the following semesters: Winter 2004, Fall 2004 and Winter 2005 using two sets of questionnaire, one administered on the first day of class (pre-test), and the other on the last day of class (post-test). Each questionnaire consists of 23 knowledge-based questions and student-specific questions to identify them according to their majors, semester level, as well as accounting background. The knowledge-based questions were based on the main points of the course's textbook, and were chosen to represent the main concepts of class for the entire semester. A sample of the questionnaire is shown in the Appendix. This dataset data is supplemented with the professor's records of the student's midterm scores throughout the semester.

Construction and Definition of Variables

For the dependent variable, we construct the *Absolute Change in Total Score* as the difference in total score between the pre-test and the post-test (post-test minus pre-test), where the total score is simply the sum of correct answers from the knowledge-based questions.¹

¹ While we have data on the student's final grade and final exam, we don't have an equivalent benchmark for these measures of performance that will allow us to appropriately measure learning or improvement in performance. Further, the examinations as well as exercises and assignments were redesigned in Fall 2004 to be more appropriate for delivery in large sections, and thus, will not be appropriate to be compared with final grades and final exam scores of students in smaller class sizes.

To test *Hypothesis 1* we construct *Class Size* as a categorical variable which takes a value “1” when a student who attended the single large class and “0” otherwise. To test *Hypothesis 2* and 3, we define *High School Accounting* as the number of accounting courses the student has taken at the high school level before attending the University.

To test *Hypothesis 4* we use the students’ *Midterm Grade* as a proxy for a student’s aptitude level. To test *Hypothesis 5*, we use three perception or attitude variables: the *Change in Perception* about the relevance of the class for (a) business-related issues, (b) one’s career, and (c) for one’s major. We label these variables as *Attitude-Business*, *Attitude-Major* and *Attitude-Career*, respectively and they serve as different proxies for the student’s level of motivation or interest in the class.²

We also control for two student-specific characteristics. One is *Semester Level* which signifies the stage of the student is in his/her respective program. It takes the values 1, 2, 3 and so on for students in the 1st, 2nd, 3rd semester, and so forth. Another student characteristic we control for is *Program* or which is defined as a dummy variable: “1” if the student is a BComm major, and “0” otherwise.

Sample Description and Summary Statistics

There were 12 sections in the Winter 2004 Financial Accounting course with class size ranging from 55-60. In Fall 2004, financial accounting had 480 registered students in one large class while in Winter 2005 there were 558 students in the large class. Students who dropped the course and those who did not fill in the pre-test, the post-test or both, were dropped from the sample. The final sample consists of 1,057 students.

Table 1 below shows the summary statistics for the data. The average pre-test score in the large class is not too different from the pre-test score of students in the small classes, but the post-test scores of students in the small classes are much higher than the post-test scores of students in the large class. Thus, mean absolute change in pre and post test scores vary greatly between students in small and large classes: about 0.62 for large classes and 5.0 for small classes. These incremental scores represent an increase of 6% and 48%, respectively. Thus, learning has deteriorated by as much as 88% (from 5.0 to 0.62) as the delivery of the course shifted from small classes to a large class. We found this difference to be statistically significant.

Students in small classes (Winter 2004) on the average have taken more high school level accounting than students in the large class. They are also more likely to be BComm majors, be in earlier stages in their program compared to students in the large classes (Fall 2004 and Winter 2005), and have higher midterm grades. Students in smaller section also have higher pre- and post-test perceptions about the relevance of the class for business, for their major and for their career. However, regardless of class size, there has been an observed deterioration in their perception of the relevance of the class for all three areas.

² These are computed as the difference in the responses in (a) Question #2 and Question #7, (b) Question #9, and (c) Question #3 and Question #5, respectively in the pre-test and the post-test.

RESULTS AND DISCUSSION

We use multiple regression analysis to explain the effect of various class-and student-specific characteristics on learning. The results are summarized in Tables 2 and 3. Our results allow us to accept *Hypothesis 1* since both models in Table 2 show that the *Absolute Change in Total Score* is 4.9 points higher (out of 23 knowledge-based questions) among students in the small class, than those in the larger class, after controlling for other factors. This difference is highly significant at the 1% level. This result is consistent with the strand of literature that emphasizes student-teacher interaction and the importance of small class sizes on learning and student performance. It is further worth noting that class size has the largest influence on performance.

However, evidence to verify the effect of *High School Accounting* needs more explanation. We consistently find from the results of the models in Table 2 that the more *High School Accounting* courses that students have taken, the lower the magnitude of their learning. This differs substantially from existing studies which find that *High School Accounting* has a positive effect on performance. However this difference can be attributed to the different measure of performance that we used. Rather than using a single measure of performance such as final grade or final exam, we use the absolute change in two test scores, one administered in the beginning and one at the end of the semester. Thus, what we are in fact measuring is the magnitude of the incremental knowledge students get from the course and thus our results *do not* mean that students who have *High School Accounting* perform worse in our class. In fact, as results in the 2nd and 3rd columns of Table 3³ shows, running separate regressions on pre-test and post-test scores shows that *High School Accounting* having a significant *positive* effect on *both* the pre-test and the post-test scores, leading us to accept *Hypothesis 2*, but the magnitude of the effect of *High School Accounting* on the post test score is lower, which allows us to also accept *Hypothesis 3*. One more high school accounting course increases pre-test score by 1.86 while it increases post-test score by only 1.23.

Thus, we further investigate *Hypothesis 3* and examine the time value of high school accounting over time to elucidate on the result discussed in previous paragraph. We ran a Seemingly Unrelated Regression (Zellner, 1962) model on the determinants of pre- and post-test scores to account for possible correlation between the unobserved factors that affect both pre-and post-test scores and to allow us to test for the difference in the coefficients of *High School Accounting* in the pre-test and post-test equations. In the 4th and 5th columns of Table 3, using a chi-square test, we found that the difference in coefficients is significant and positive, with the

³ To explain pre-test scores, we use perception on relevance of course for business, major and career indicated in the pre-test, and we drop the midterm grade which is measured mid-semester, so it should not affect pre-test scores administered at the beginning of the semester. To explain post-tests score, we use perception on relevance of course for business, major and career indicated in the post-test. In Table 3, size dummy as a determinant of pre-test score is not really meant to capture student-teacher or student-student interaction, especially for the pre-test which is taken at the beginning of the semester; it just aims to control for possible differences in the pool of students who took the class in Winter 2004, and those who took them in Fall 2004 and Winter 2005. The same can be said for the other student-specific characteristics such as program dummy, semester level and attitude variables. As the results indicate, the greatest influence in pre and post test scores can be explained by *High School Accounting*, save for size dummy in the post-test score, which already is an expected result as indicated in Table 1.

effect of *High School Accounting* being higher (more positive) on the pre-test than on the post-test score. This result lends further support to the results of existing studies that assert that while *High School Accounting* may have a positive effect on performance (measure by pre-test score and post-test scores), it has a diminishing effect on learning (the difference between pre and post test scores) over time or as the content of higher level accounting courses get more difficult.

The results in Tables 2 and 3 also allow us to accept *Hypothesis 4*. We find that students with higher *Midterm Grade* have also experienced greater improvement in test scores between the pre-test and the post-test, but the improvement is only in the magnitude of 0.02 to 0.03 more points or about a 1% change. Nonetheless, the coefficient is highly significant at the 1% level, and is evidence that *Midterm Grade* as a mid-semester evaluation of performance can be a good indicator of a student's overall learning in the course.

The different sign and significance of the coefficients of *Attitude-Business*, *Attitude-Major* and *Attitude-Career* indicated in Tables 2 and 3 show mixed results on the role of various measures of *Perception* and does not allow us to categorically accept or reject *Hypothesis 5*. We found that *Attitude-Business* has a positive significant effect on learning, *Attitude-Major* has a negative significant effect, and *Attitude-Career* has no significant effect. However, these results emphasize the importance of varying measures of attitude on different areas. It may be the case that those with improved appreciation for the relevance of the class in business-related issues have a broader view of the course, and thus a greater appreciation and interest in it throughout the semester, while the students who have had an increased appreciation of the relevance of the class in their major have narrower interests and may have affected their ability to learn and catch up with the content of the class later in the semester. Since most of the students are in their 2nd to 4th semester, they may not have a clear idea on their career plans and goals, and thus their perception about the relevance of the course for their career does not figure in as a significant determinant of learning. In fact, dropping of *Attitude-Career* in Model III of Table 2 does not change the results significantly.

The models also show that non-BComm students tend to have a score improvement of approximately 0.84 more points than BComm majors. While this result seems surprising, it is consistent with results obtained by Koh and Koh (1999) who found that in a three year Accountancy degree programme, BComm students performed worse than non-BComm students. However, we find that students who take the course later in the program do not have significantly higher test scores.

CONCLUDING REMARKS AND IMPLICATIONS

The intent of this paper is to contribute to the literature on the determinants of student performance in undergraduate accounting course, by incorporating class and student-specific features. Further, we also distinguish between objective and subjective student-specific characteristics, in our attempt to bring to the fore the importance of a wide array of factors in influencing learning. This will have an impact in the delivery as well as the design of the courses that will make it more relevant for students' careers, majors and possibly, future long-term business-related endeavors.

We find that class size is the most important determinant of learning, even after controlling for various student-specific characteristics. The shift from small to large classes greatly harm the delivery as well as content of the course when class size is increase ten-fold, as in the case of Financial Accounting at the University of Guelph. The magnitude is in the order of 20% difference in test score improvement between small and large classes, and this has serious implications for the future planning and design of the Bachelor of Commerce program. This issue becomes even more important when we take into account that Financial Accounting is the basic and core course among BComm majors.

We also find that accounting background has a positive effect on test scores, but has a diminishing effect over time. This may have implications on determining the prerequisites for collegiate level accounting courses, as well as in adjusting expectations on students who have taken more high school accounting. It again has strong implications for preparing students for higher college level accounting given that Financial Accounting is a prerequisite for other accounting courses. For example, our results seem to indicate that the financial accounting class investigated here is an introductory level class and may serve to even out the playing field between those with and without high school accounting background.

We also investigate the importance of distinguishing between various subjective factors that may influence learning and how they are also important determinants of learning vis-à-vis objective factors such as aptitude. We show that improved attitude toward the relevance of the class for general and broader issues, such as business, can be strong motivators of learning, but narrow views and a perception about the application of the class in very limited areas (specific majors) have adverse effect on learning. These results may have implications on how teachers design and deliver the class material to broaden the appreciation for and the the applicability of the skills and concepts learned in this course.

Table 1. Mean and standard deviations of the variables in small and large classes.

	Small Sections (Winter 2004)	Large Section (Fall 2004 and Winter 2005)	Total Sample
Pre test score	10.45 (4.08)	10.20 (3.61)	10.90 (3.83)
Post test score	15.45 (3.43)	10.82 (4.12)	12.71 (4.48)
Absolute change in score: (Post-test score)-(Pre-test score)	4.99 (3.81)	0.28 (3.90)	1.81 (4.73)
Accounting Background	0.79 (0.84)	0.63 (0.79)	0.70 (0.81)
Mid-term score	59.08 (19.97)	34.77 (6.73)	44.69 (18.23)
Attitude-Business	-0.18 (1.49)	-0.51 (1.65)	-0.37 (1.60)
Attitude-Major	-1.21 (2.87)	-1.23 (2.94)	-1.22 (2.91)
Attitude-Career	-0.28 (1.17)	-0.38 (1.18)	-0.34 (1.18)
Program Dummy	0.89 (0.31)	0.77 (0.42)	0.82 (0.38)
Semester Level	2.55 (1.45)	3.27 (1.54)	2.98 (1.55)
Number of Observations	433	624	1,057

Standard deviations are indicated in the parentheses

Table 2. Summary of results from Ordinary Least Squares Regression.

Variables	Model I	Model II	Model III
Constant	3.99*** (0.75)	3.80*** (0.75)	3.80*** (0.75)
Size Dummy	-4.97*** (0.33)	-4.89*** (0.33)	-4.89*** (0.33)
Accounting Background	-0.38** (0.15)	-0.40** (0.15)	-0.40** (0.15)
Mid-term score	0.02*** (0.01)	0.03*** (0.01)	0.03*** (0.01)
Attitude-Business	---	0.19** (0.07)	0.19** (0.08)
Attitude-Major	---	-0.07* (0.04)	-0.08* (0.04)
Attitude-Career	---	0.00 (0.10)	---
Program Dummy	-0.85** (0.38)	-0.80** (0.38)	-0.81** (0.38)
Semester Level	0.15 (0.09)	0.14 (0.09)	0.14 (0.09)
R-square	0.33	0.34	0.34

Figures in parentheses are standard errors. *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

Table 3. The effect of *High School Accounting* on pre and post-test scores using Seemingly Unrelated Regression .

Variables	Pre-Test Score ^{a/}	Post-Test Score ^{b/}
Constant	11.10*** (0.94)	10.17*** (0.86)
Size Dummy	0.78** (0.24)	-2.91*** (0.29)
Program Dummy	-0.18 (0.35)	-0.97** (0.33)
Accounting Background	1.86*** (0.13)	1.23*** (0.13)
Semester Level	0.11 (0.09)	0.22** (0.08)
Mid-term Grade	---	0.07*** -0.01
Attitude-Business	-0.14 (0.07)	-0.02 (0.08)
Attitude-Major	-0.09 (0.05)	-0.01 (0.05)
Attitude-Career	0.09 (0.12)	0.15 (0.12)
R-square	0.17	0.44
Chi-square test of significance between (Pre-test) Accounting background and (Post-test) Accounting background	16.02 ***	

Figures in parentheses are standard errors. *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

^{a/} Uses perception on relevance of course for business and major indicated in the pre-test, and drops the midterm grade which is measured mid-semester, so it should not affect pre-test scores administered at the beginning of the semester

^{b/} Uses perception on relevance of course for business, major, and career indicated in the post-test

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APPENDIX

SKILLS, INTEREST AND KNOWLEDGE ASSESSMENT

Examiner:

Name _____

Student I.D. # _____

Instructions

1. Ensure that you have a test with all fifty-four questions.
2. Clearly PRINT your name and student on this test paper and the bubble sheet provided to you. Be sure to shade in your name and student number in the bubble sheet as well.
3. Read **ALL** questions in the test booklet provided for you. As results from this assessment are used as a guide of the class' current standing in accountancy, please do not guess at answers.
4. Please note that some of the questions in this assessment are design so we can develop a better understanding of students' interest in and appreciation of accounting.
5. Please feel free to skip any question you would rather not answer.
6. Your decision whether or not to take part in the study will have no bearing on your standing in this or any other course.

THE TEST GRADE RECEIVED WILL NOT BE INCLUDED IN YOUR FINAL GRADE FOR THE COURSE.

YOUR SPECIFIC RESPONSES TO THESE QUESTIONS ARE HELD IN **STRICTEST CONFIDENCE**.

INDIVIDUAL INSTRUCTORS WILL **NOT** HAVE ACCESS YOUR SPECIFIC RESPONSES, BUT WILL BE PROVIDED WITH AGGREGATE MEASURES (I.E., MOST COMMON RESPONSE) TO THESE QUESTIONS AFTER FINAL GRADES HAVE BEEN SUBMITTED TO THE REGISTRAR.

Time allowed: Thirty Minutes.

1. Which version of the Test are you completing:

- a) 1.0
- b) 2.0
- c) 3.0

Please indicate your strength of agreement or disagreement with the following nine statements:

2. This course has been pivotal to my understanding of business

- a. strongly disagree
- b. disagree
- c. neutral
- d. agree
- e. strongly agree

3. This course has been important to my understanding of material relevant to my major

- a. strongly disagree
- b. disagree
- c. neutral
- d. agree
- e. strongly agree

4. I see no purpose in taking courses outside of my major.
 - a. strongly agree
 - b. agree
 - c. neutral
 - d. disagree
 - e. strongly disagree

5. This course has enabled me to solve problems encountered by people in my field / major
 - a. strongly disagree
 - b. disagree
 - c. neutral
 - d. agree
 - e. strongly agree

6. I enrolled in my major because I am interested in business / commerce / management
 - a. strongly agree
 - b. agree
 - c. neutral
 - d. disagree
 - e. strongly disagree

7. This course has no bearing on my ability to solve business problems
 - a. strongly disagree
 - b. disagree
 - c. neutral
 - d. agree
 - e. strongly agree

8. This course has not been relevant to my understanding of the material in my major
 - a. strongly agree
 - b. agree
 - c. neutral
 - d. disagree
 - e. strongly disagree

9. This course has been important to my career development / aspirations
 - a. strongly disagree
 - b. disagree
 - c. neutral
 - d. agree
 - e. strongly agree

10. My interest in business / commerce / management resulted in my enrolment in my major
 - a. strongly agree
 - b. agree
 - c. neutral
 - d. disagree
 - e. strongly disagree

11. I wish to pursue a career in accountancy
 - a. Yes

- b. No
 - c. Maybe
12. I studied accounting in high school
- a) One course
 - b) More than one course
 - c) No
13. Which of the following summarizes the revenues earned and expenses incurred by a business over a period of time?
- a. balance sheet
 - b. statement of retained earnings
 - c. statement of receipts and payments
 - d. income statement
14. Revenues of ABC Company include Fees Earned of \$46,000 and Commissions Earned of \$12,000. A total of \$39,000 in expenses have been incurred during the period. ABC Company has a
- a. net income of \$58,000.
 - b. net income of \$19,000.
 - c. net income of \$7,000.
 - d. net loss of \$27,000.
15. The matching concept dictates when
- a.. assets are recorded.
 - b. exchange transactions are reported.
 - c. a business closes its fiscal year.
 - d. expenses are recognized.
16. At the beginning of the period the Supplies account balance totaled \$440. During the period purchases of supplies were made for \$300 and \$100. At the end of the period only \$50 in supplies were on hand. Identify the CORRECT adjusting entry.
- a. Debit Supplies Expense and credit to Supplies for \$400.
 - b. Debit Supplies Expense and credit to Supplies for \$840.
 - c. Debit Supplies Expense and credit to Supplies for \$790.
 - d. Debit Supplies and a credit to Supplies Expense for \$790.
17. Supplemental disclosures about the financial condition of the company that are an integral part of the financial statements are called
- a. management's discussion and analysis.
 - b. footnotes.
 - c. financial highlights.
 - d. attachments.
18. Which of the following inventory costing methods assumes that the oldest units of inventory are the first ones sold?
- a. specific identification
 - b. weighted average
 - c. LIFO
 - d. FIFO

19. The recorded cost of a plant and equipment asset is
- the purchase price of the asset.
 - all the reasonable and necessary costs incurred to get the asset to the location where it will be used.
 - all of the reasonable and necessary costs to get the asset ready for use.
 - the purchase price of the asset, plus the cost to get the asset to the buyers location, plus the setup costs necessary to get the asset ready for use.
20. Which of the following is the formula for the statement of retained earnings?
- beginning retained earnings + net income – dividends = ending retained earnings
 - beginning retained earnings + net income + dividends = ending retained earnings
 - beginning retained earnings + increase in cash + dividends = ending retained earnings
 - beginning retained earnings + cash received – cash paid = ending retained earnings
21. During the year, the Profito Corporation earned revenues of \$5,000, incurred expenses of \$3,000 and paid its owners dividends of \$500. What net income would the corporation report for the year?
- \$8,000
 - \$7,500
 - \$2,000
 - \$1,500
22. Ten-year, 10%, bonds with a par or face value of \$100,000 are sold at a premium of \$10,000. The premium will be amortized on a straight-line basis, semiannually over the life of the bonds. What amount of the premium will be amortized each semiannual period?
- \$10,000
 - \$5,000
 - \$1,000
 - \$500
23. Bonds with a par value of \$100,000 are sold on January 1 for 101. Cash will be debited for \$101,000. What other account or accounts will be debited or credited?
- Bonds Payable will be credited for \$101,000.
 - Bonds Payable will be credited for \$102,000 and Discount on Bonds Payable will be debited for \$1,000.
 - Bonds Payable will be credited for \$100,000 and Premium on Bonds Payable will be credited for \$1,000.
 - None of the entries above are correct.
24. Equipment valued at \$6,000 was purchased in early January. The equipment was expected to last for 5 years. Record the depreciation entry for the first annual period ended December 31.
- Debit Depreciation Expense, Equipment and credit Accumulated Depreciation, Equipment for \$100.
 - Debit Depreciation Expense, Equipment and credit Accumulated Depreciation, Equipment for \$2,400.
 - Debit Depreciation Expense, Equipment and credit Accumulated Depreciation, Equipment for \$1,200.
 - Debit Depreciation Expense, Equipment and credit Accumulated Depreciation, Equipment for \$3,000.

25. Using any or all of the following accounts, calculate the Net Sales for the business.

Sales	\$82,000
Sales Returns and Allowances	\$9,000
Purchase Discounts	\$8,000
Credit Card Discounts	\$400
Merchandise Inventory	\$20,000
Sales Discounts	\$700

- a. \$71,900
- b. \$71,500
- c. \$63,500
- d. \$73,000

26. Net sales of the business totals \$405,000 and cost of goods sold during the period totals \$310,000. What is the gross margin (gross profit) of the business?

- a. \$715,000
- b. \$405,000
- c. \$105,000
- d. \$95,000

27. The coupon rate or contract rate of interest on the bond is 9%. At the same time the market rate of interest for comparable bonds is 8%. This bond will most likely sell

- a. at a premium.
- b. at a discount.
- c. below the par or face value of the bond.
- d. at its par value.

28. Using any or all of the information presented in the table, calculate the straight-line amortization for the year 2003.

Historical cost of the asset	\$42,000
Estimated trade-in or salvage value	\$2,000
Estimated useful life	5 years
Total years of amortization to date	None
Asset put in service	January, 2003

- a. \$40,000
- b. \$8,400
- c. \$8,000
- d. \$4,000

29. Which of the following describes the revenue or realization principle?

- a. Revenues are recorded when the cash is received.
- b. Revenues are recorded when they are earned, regardless of when cash is received.
- c. Revenues are recognized when related expenses have been paid.
- d. Revenues are recognized when more than fifty percent of the contract is completed.

30. Using any or all of the following accounts and balances, calculate the Net Sales of the business.

Sales Discounts	\$450
Cash	\$40,000
Sales	\$75,000
Delivery Expense	\$150

Sales Returns and Allowances	\$1,150
Merchandise Inventory	\$35,000

- a. \$75,000
- b. \$73,400
- c. \$74,550
- d. \$73,850

31. Which of the following is NOT one of the four basic financial statements that summarize the financial activities of a business?

- a. statement of assets and debts
- b. income statement
- c. statement of cash flows
- d. statement of retained earnings

32. Which of the following is the formula for the balance sheet?

- a. revenues – expenses = net income
- b. current assets + non-current assets = total assets
- c. change in cash + beginning cash = ending cash
- d. total assets = total liabilities + total equity

33. The inventory records for the Tiny Trinkets Company reflected the following:

August 1	Beginning inventory	200 units @ \$1.00 each = \$200
August 6	Purchase	300 units @ \$1.10 each = \$330
August 19	Purchase	400 units @ \$1.20 each = \$480
August 30	Purchase	100 units @ \$1.30 each = \$130

Tiny Trinkets Company uses a *periodic* inventory system. During the month of August, the company sold 600 units at \$1.50 each. If Tiny Trinkets uses the FIFO inventory costing method, what is the company's cost of goods sold for August?

- a. \$650
- b. \$684
- c. \$690
- d. \$720

34. The Retainer Company started the year with \$10,000 of retained earnings. During the year, the company had net income of \$4,000 and paid dividends of \$1,000 to its owners.

What is the company's ending retained earnings?

- a. \$15,000
- b. \$14,000
- c. \$13,000
- d. \$9,000

35. The following information is available for the Finstate Company.

Total revenues	\$12,000	Beginning retained earnings	\$6,000
Total assets	\$35,000	Net income	\$5,000
Total equity	\$20,000	Dividends paid to owners	\$2,000

Determine Finstate's total liabilities.

- a. \$7,000
- b. \$9,000
- c. \$15,000

d. \$21,000

36. Please indicate your strength of agreement or disagreement with the following fourteen statements:
The class offers a safe, non-threatening learning environment.

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly disagree

37. New material is always presented at a comfortable pace for me.

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly disagree

38. New material is presented in more than one way.

- a. Strongly disagree
- b. Disagree
- c. Neutral
- d. Agree
- e. Strongly agree

39. I feel free to pose questions or give opinions during class.

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly disagree

40. The professor emphasizes the most important topics during the lecture, thus allowing students to focus on those topics in the textbook and other assigned readings.

- a. Strongly disagree
- b. Disagree
- c. Neutral
- d. Agree
- e. Strongly agree

41. This professor is highly approachable and accessible.

- a. Strongly disagree
- b. Disagree
- c. Neutral
- d. Agree
- e. Strongly agree

42. This professor encourages a classroom environment that shows tolerance for others.

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Disagree

- e. Strongly disagree
43. This professor accurately describes material that will be covered on tests and exams.
- a. Strongly disagree
 - b. Disagree
 - c. Neutral
 - d. Agree
 - e. Strongly agree
44. Difficult ideas and concepts are discussed in depth, with examples.
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
45. The professor encourages and/or organizes study groups, discussion groups and/or electronic conferencing.
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
46. All students have access to all parts of the curriculum (i.e., textbooks, web sites, lab equipment, other materials, assigned readings, etc).
- oooooooooooo. Strongly disagree
- pppppppppppp. Disagree
- qqqqqqqqqqq. Neutral
- rrrrrrrrrr. Agree
- sssssssssss. Strongly agree
47. This professor respects diversity of students in the class.
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
48. Feedback on tests and exams in this course provides an opportunity for further learning.
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree
 - e. Strongly disagree
49. Tests and exams are composed of material emphasized in class.
- a. Strongly agree
 - b. Agree
 - c. Neutral
 - d. Disagree

- e. Strongly disagree

50. Indicate the percent of time you feel you are able to concentrate and focus on the material presented during class.

- a. Less than 50% of the time
- b. Between 50% and 70% of the time
- c. Between 70% and 90% of the time
- d. 100% of the time

51. Indicate the percent of the facts and concepts covered in this course that you feel you are able to recall.

- a. Less than 60% of the course facts and concepts
- b. Between 60% and 70% of the course facts and concepts
- c. Between 70% and 80% of the course facts and concepts
- d. Between 80% and 90% of the course facts and concepts
- e. Between 90% and 100% of the course facts and concepts

52. Indicate the percent of time during exams you are able to concentrate on understanding the question and formulating an answer.

- a. Less than 50% of the time
- b. Between 50% and 70% of the time
- c. Between 70% and 90% of the time
- d. 100% of the time

53. Indicate the percent of the facts, concepts and arguments covered in the course that you feel you understand as they are presented during class.

- a. Less than 60% of the course facts and concepts
- b. Between 60% and 70% of the course facts and concepts
- c. Between 70% and 80% of the course facts and concepts
- d. Between 80% and 90% of the course facts and concepts
- e. Between 90% and 100% of the course facts and concepts

54. Indicate the percent of the course facts, concepts and arguments covered in the course that you feel you could correctly explain to someone else.

- a. Less than 60% of the course facts and concepts
- b. Between 60% and 70% of the course facts and concepts
- c. Between 70% and 80% of the course facts and concepts
- d. Between 80% and 90% of the course facts and concepts
- e. Between 90% and 100% of the course facts and concepts