How Much Do Study Habits, Skills, and Attitudes Affect Student Performance in Introductory College Accounting Courses?

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Abstract

Background: Financial accounting is a skills course which to a large extent can be best learned through deliberate practice. Teachers implement this by continuously assigning homeworks, encouraging good study habits, asking students to budget time for studying, and generally exhorting students to "work hard".

Aims: This paper examines the impact of "study habits, skills, and attitudes" (SHSAs) on the performance of students in an introductory financial accounting college course.

Sample: 395 2nd year business students in a Philippine university.

Method: Data related to variables found to have influenced accounting performance in previous researches as well as SHSA variables are collected through student survey and school records. They are treated as independent variables using multiple regression analysis, with the accounting course final grade as the dependent variable. The paper also examines the factors that differentiate high- from low-performing students.

Results: The study found that math proficiency, English proficiency, high school accounting, and academic aptitude influence accounting performance, supporting the findings of many previous researches on cognitive factors. Among the SHSA factors, only student perception of teacher effectiveness and level of effort influence accounting performance. Time spent studying, attendance in review classes conducted in tutorial centers, motivation, and study habits have no significant effect. Upon further analysis comparing high and low performers, study habits show up to be significant as well. In particular, students who performed better are those who did more in terms of reading ahead, doing their homework, participating in class, and cramming for exams.

Conclusion: Since student perception of teacher effectiveness strongly influences accounting performance, it is critical that hiring and training of accounting faculty be given utmost importance. Level of effort and good study habits also help, but not the sheer number of study hours.

Keywords: accounting student performance, study habits, student perception of teacher effectiveness

學習習慣、技能和態度如何影響在高校基礎會計課程的學生表現？

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摘要

*背景：*財務會計課是一門技能科目，在很大程度上可以通過刻意練習以得到最好的果效。教師通過訓練學生經常做功課、鼓勵良好的學習習慣、要求學生安排時間去溫習、和不斷的勸告學生要努力學習等方法去達成任務。

*目的：*本文探討學習習慣、技能和態度**(SHSAs)**如何影響在高校基礎會計課程的學生表現。

*樣本：*在一所菲律賓大學大二商業貿易課的395 位學生。

*方法：*根據先前的研究，有關影響會計表現力的變數和SHSA變數的資料收集，是通過學生的調查和學校記錄而得。它們被視為使用多元回歸分析中的獨立變數，會計課程的最終成績為因變數。本文也探討區分學生成績表現高低的因素。

*結果：*本研究發現，數學能力、英語水準、高中會計成績和學能性向都影響大學會計科的成績，與很多以往認知因素的研究結果相符。在SHSA因素中，只有學生對教師成效的觀感和學生本人的努力程度影響大學會計科的成績。學生用於溫習的時間、參加補習社溫習班、學習動機、和學習習慣等都沒有顯著的效果。進一步分析本研究中高和低成績的學生，發覺學習習慣是重要的因素。表現較好的學生包括提前有閱讀、做功課、在課堂上參與、而且考試前盡力溫習。

*結論：*由於學生對教師成效的觀感會強烈影響會計科的成績，雇用和培訓會計教師至關重要。努力和良好的學習習慣也有幫助，但並非只是學習時間數量之多少這樣簡單。

關鍵詞：會計學生的表現、學習習慣、學生對教師效能的觀感

Introduction

Financial Accounting is usually one of the first business courses taken by college business students. As such, financial accounting not only exposes students to a system of recording and summarizing business transactions, but more importantly, it helps students interpret and analyze financial information which are crucial inputs in most business decisions. In many business programs for non-accounting majors, however, accounting is considered to be a difficult subject to pass (see Doran, Bouillon & Smith, 1991; Elias, 2005; Lane & Porch, 2002). In the university where this study is conducted, the percent of students who obtain a final grade of less than C ("satisfactory") in their first college accounting course is 30 to 35%, making it the business course with the lowest average grade.

Financial accounting is basically a skills course, and as such, constant practice is key to grasping the concepts. The amount of time spent studying coupled with "deliberate practice" can improve academic performance (Plant, Ericsson, Hill & Asberg, 2005). In line with this, accounting teachers in this university exhort their students to do the exercises at the end of each chapter in the textbook, to answer the additional exercises in the workbook, and even to attend review classes outside of regular class hours to drill in the concepts. Teachers also "talk up" or emphasize the importance of budgeting sufficient time outside of class hours to adequately prepare for classes, encourage certain study habits such as reading ahead, studying in groups, and careful note-taking. In short, students are asked to "work hard" to pass the course. Motivating the students becomes a constant concern of the teachers, and this includes making the lessons more meaningful, being sensitive to students' difficulties, and giving regular feedback to students' works.

How much of these, however, actually affect accounting performance?

This study focuses on the influence of these types of non-cognitive factors such as time spent studying, study habits, level of effort, motivation, attending review classes conducted by independent tutorial centers, as well as student perception of teacher effectiveness on the performance of students in introductory college accounting courses. For lack of a better term, this study will refer to them as "study habits, skills, and attitudes" (SHSAs), which was used in the Crede & Kuncel (2008) meta-analysis covering 344 studies. They claim that SHSAs are strongly related to academic performance in college, and more importantly, they are quite independent of both high school grades and standardized college admission tests. Crede and Kuncel explain that this is most likely due to students acquiring new study skills, or taking greater personal responsibility, when they are in college.

This study is similar in approach to studies which examine a broad range of cognitive and non-cognitive factors that affect accounting performance such as academic aptitude, math proficiency, age, gender, study effort, work experience, and high school accounting (Gracia & Jenkins, 2003; Gul & Fong, 1993; Guney, 2009; Naser & Peel, 1998; and Wooten, 1998). This study departs from these other studies through its focus: it is primarily interested in non-cognitive factors related to the amount of work or effort students put in, and in behaviors which may influence the quality of studying. It still builds on the results of previous studies by including factors well-known to affect accounting performance as control variables to separate out the effect of SHSA variables.

This study is the first of its kind involving students from the Philippines, and among the few conducted in developing and newly developed countries, such as Malaysia (Tho, 1994), Hong Kong (Gul & Fong, 1993; Lee, 1999; Wong & Chia, 1996), Singapore (Koh & Koh, 1999), and the West Bank (Naser and Peel, 1998). In these countries, English is not the first language, so there is also the issue of English proficiency as a possibly factor in determining accounting performance.

Review of Related Research

This section initially discusses the factors which are well-known to influence accounting performance since they are used as control variables in this study. Research related to SHSA-like factors, potentially related to accounting performance, are more extensively discussed.

Control Variables

Most researchers agree that academic aptitude has a positive effect on accounting performance (Doran et al., 1991; Eskew & Faley, 1988; Hartnett, Romcke & Yap, 2004; Tho, 1994; Tyson, 1989). There is also a similar consensus regarding math proficiency having a positive effect on accounting performance (Eskew & Faley, 1988; Tho, 1994; Tyson, 1989). English proficiency is also included as a control variable here, since Philippines is a non-native English speaking country yet accounting courses taught in the university involved in this study are taught in English, and use an English accounting textbook as well as other teaching materials in English. Accounting performance researches which include language proficiency as a predictor variable are rare since most of these researches are conducted in English-speaking countries such as the United States, England, and Australia. Two researches done in Hong Kong (Gul & Fong, 1993; Wong & Chia, 1996) though, show that English proficiency is significantly positively associated with accounting performance.

College students who have taken accounting studies during high school have been found to perform better in their college accounting course since they are usually tested on topics which were taken in high school (Eskew & Faley, 1988; Gracia & Jenkins, 2003; Lynn, Shehata & White, 1994; Naser & Peel, 1998; Tho, 1994). Finally, gender has been included in many studies, but the results are mixed. Bartlett, Peel & Pendlebury (1993), Doran et al. (1991), and Koh & Koh (1999) found that males outperform females while Gracia & Jenkins (2003), Tho (1994), and Tyson (1989) found it to be the other way around. Lee (1999) and Lynn et al. (1994) found either no or inconsistent effects. It seems that there are other intervening variables that interact with the gender variable to produce either a positive or negative effect, such as the ratio of male to female students in the class (Tho, 1994), or the students and teachers having the same gender (Lipe, 1989).

SHSA Factors

Motivation and hard work have been identified to be almost equally as important as, or more important than, cognitive factors in explaining students' academic performance. Students who are highly motivated achieved better grades than their peers (Harrell, Caldwell & Doty, 1985). Motivation can influence effort, which in turn significantly influences accounting performance (Wooten, 1998). Anthony (2000) found that students and faculty rate "self-motivation" highly among the factors most likely to influence success in math subjects, as shown by their drive towards completion of assignments and passing the exams. Among the factors most likely to influence failure in math subjects, both groups rate "lack of effort" highly, and this was shown through low class attendance and less than 20% of the students spending the recommended 12-13 hours of study per week on their math course. It is notable here that these factors rate more highly than inadequate math background knowledge. Dewan & Kaplan (2005) explain why a group of students with average grades in first-year statistics and average GPA perform more poorly in their 2nd year finance course than the group of students with even lower grades in first-year statistics and GPA. They think that since the finance course requires more application, these students lack the drive for hard work to go beyond memorization despite their innate ability in the foundational subjects. Lounsbury, Gibson & Hamrick (2004), show that work drive, defined as "a disposition to

work long hours, take on extra responsibilities at work, display a high level of energy at work" (Lounsbury et al., 2004), explain as much as 13% of the variability of middle school children's GPA.

Regarding the amount of study time as a measure of "hard work", findings have been mixed so far. McFadden & Dart (1992), in their study of time management skills of undergraduate business students, found that study habits and total time spent studying do affect grades. On the other hand, Nonis and Hudson (2006) found that the amount of time spent studying, measured during the ninth week of a 15-week semester, has no direct influence on academic performance, although it interacted with academic ability to affect academic performance. Guney (2009) measured effort by the number of hours a student allocated to studying accounting each week and found a negative relationship between effort and grades.

On study skills and habits, the results have been mixed and may have depended on which specific study habits were measured. Schuman, Walsh, Olson & Etheridge (1985) examined group studying, cramming, degree of note-taking, review of past exams, and going over readings twice, but they concluded that none of these variables have been found to have a direct effect on grades. On the other hand, positive results were found when some combination of study behaviors such as attendance, homework turned in, and use of study guide, prior preparation for the class, participating in class, and coming to class on time were used (Gracia & Jenkins, 2003; Shaftel & Shaftel, 2005; and Wooten, 1998). Group learning activities can result to an increase in students' deep learning approach, which has been known to improve analytical thinking (Hall, Ramsay & Raven, 2004). Williams & Worth (2002) conclude that attendance and note-taking predict performance in a large human development course, and that note-taking is the best predictor of total course performance.

The teacher has been identified as having substantial impact on student achievement (Nye, Konstantopolous & Hedges, 2004; Rivkin, Hanushek & Kain, 2002; Rockoff, 2004). These studies involve measuring actual teacher traits, credentials, and experiences. Our study measures the teacher effect indirectly by using student perception of teacher quality, which has been found to be positively correlated to undergraduate students' motivation (Dahl & Smimou, 2011). Carefully chosen and trained teaching assistants, who served as role models for achievements in business and accounting, positively influenced students to develop good study habits and student attitudes, which in turn improved performance (Shaftel & Shaftel, 2005). Guney (2009) also found a positive relationship between student perception of teaching quality and student performance. These studies show that how students perceive their accounting teachers can affect their interest in the course, their study habits, and their ambition to pursue careers in business after they graduate.

In summary, the results of these studies concerning SHSA factors indicate varying levels of impact on accounting performance. This paper tries to examine their combined impact.

Research Design

The Sample

This study covered mostly 2nd year students at a Philippine university who took their introductory accounting course ("Principles of Accounting") during the first semester of school year 2006-07. This is a 3-unit course with 3 contact hours a week spread over 18 weeks from June to October. These students are in a variety of 4-year management programs which require 12 units of accounting and finance subjects. Four departmental exams make up 80% of the final grade, while quizzes, projects, and class participation make up the balance. The departmental exams are closed-book, and made up of objective-type questions (e.g., fill-in-the-blanks, multiple-

choice, true or false), many short problems, and a few long problems. Class size is typically about 30 to 40 students. The teachers use a common textbook and syllabus, and teach in English.

At the beginning of the second semester of school year 2006-07 (November & December 2006), the semester following the introductory accounting course, 420 students taking their second accounting course were asked to fill out a questionnaire related to their accounting course in the first semester. Their teacher in that course conducted the survey in class, and collected the questionnaires before the end of the period. Only 395 students were used in the statistical analyses since missing data, lack of data consistency, or non-authorization regarding the use of data for the study caused the rest to be discarded.

Though age is not a factor being studied here since almost all the students in this university directly entered college from the high school, it should be noted that due to the educational system of the Philippines wherein basic education is only for 10 years compared to 12 years in most other countries, the age of students in this study tend to be about 17 or 18 years old.

Methodology

This study examines the relative effect of various factors on accounting grade by linearly regressing it against independent variables in the following equation:

$$AccGrade = a + ß_1Gender + ß_2CET + ß_3EnProf + ß_4MathProf + \\ + ß_5HS\_Acctg + ß_6StudyHrs + ß_7StudyHabits + \\ + ß_8Tutorial + ß_9Teacher + ß_{10}Motivation + ß_{11}Effort + €$$

Where

Variable	Definition
AccGrade	Final grade in an introductory accounting course, with grade range from 1.0 to 4.0 at 0.5 intervals. Students who fail get 0.0. Four exams make up 80% of the grade.
a	Intercept
Gender	Male (1), female (0)
CET	College Entrance Test (CET) percentile score. The test has verbal, numeric, analytical, abstract reasoning and other components to evaluate the high school students' suitability for college.
EnProf	English proficiency as measured by the Grade Point Average (GPA) of English subjects up to the semester when introductory accounting course is taken.
MathProf	Math proficiency as measured by the GPA of Math subjects up to the semester when introductory accounting course is taken.
HS_Acctg	If student has taken accounting in high school (1), otherwise (0).
StudyHrs	The natural logarithmic (ln) value of the number of study hours over a semester for accounting as reported by students, adjusted for the percent of time spent "actually" studying. The number of study hours were transformed using the ln function to bring their values closer to the range of values of the other variables, i.e., from 0.0 to 5.0.
StudyHabits	Mean of student's responses to nine statements regarding frequency of observing certain study habits. The higher the value, the better are the study habits.
Tutorial	If student is enrolled in paid review classes offered by independent tutorial centers while taking the introductory accounting course (1), otherwise (0).
Teacher	Mean of student's rating of four statements pertaining to his/her teacher's ability. The higher the value, the better is the student's perception of his/her teacher's quality.
Motivation	Level of motivation using Vroom's force model of expectancy theory. The higher the value, the more motivated is the student.
Effort	Level of study effort student is willing to spend on accounting, as rated by student. The higher the value, the greater is the student's effort.
ε	Error term or residual value

Measurement of Variables

The independent variables related to student academic aptitude are the College Entrance Exam (CET) percentile score, Math proficiency, and English proficiency. The student identification number, which students indicated in the questionnaire, was used to collect the subject grade data from the College Registrar. The Math and English proficiency were based on mean subject GPAs computed by the researcher. Most students have 9 units of math subjects and 12 units of English subjects. The values for the rest of the variables were obtained through the questionnaire. The first five independent variables serve as control variables, while the last six relate to SHSAs.

The questionnaire was consciously designed such that its approach to estimating the number of hours studied for the introductory accounting subject tried to minimize problems of recall and truthfulness of students in revealing the number of hours they spend studying (see Schuman et al., 1985). The questionnaire initially asked the student to estimate the number of hours typically spent studying for a week with no accounting exam and a week with an accounting exam by filling out a table containing days of the week with corresponding spaces for the hours spent studying accounting each day. Total hours spent studying over the semester was computed by first multiplying the number of hours spent studying in weeks without exam by 13 and the number of hours spent studying in weeks with exam by 4, for a total of 17 weeks. (Although a semester usually has 18 weeks, holidays and suspended classes due to inclement weather effectively reduce the number of weeks to 17.) These two products were summed to get the initial total study hours over a semester. The questionnaire then asked students for the percent of the time they actually spent studying, by reminding them that they may have spent some time settling down, getting distracted, or chatting with friends while they were "studying"[1]. The initial total study hours were then multiplied by the percent of time students actually spend studying. This modified total study hours appears to be a more accurate measure of study hours.

Regarding study habits, the questionnaire asked students to rate their frequency of engaging in certain activities while studying accounting, on a scale of 1 (rarely) to 5 (most of the time). These activities are: consulting with classmates, group studying, cramming for exams, reading the textbook before and after the teacher lectures on the subject, working on assignments, participating actively in class, taking extensive notes during class, rewriting notes after class, and practicing on old exams. Except for cramming, greater frequency of the study habit is regarded as better. Cramming, is reverse-scored (i.e., 5 is changed to 1, 4 is changed to 2, 2 is changed to 4, and 1 is changed to 5) when the mean response of the nine statements is computed since less cramming is considered as a better study habit. The study habits mentioned in the questionnaire picked the more applicable ones from among those used in the Gracia & Jenkins (2002), Nonis & Hudson (2006), Schuman et al. (1985), and Shaftel & Shaftel (2005) studies.

Student perception of teacher effectiveness was measured through the students' indicating their level of agreement (1 – strongly disagree, 5 – strongly agree) to statements pertaining to their teachers' effectiveness, mastery of the subject, ability to stimulate interest, and sensitivity to students. The mean rating of the four statements represents the students' perception of their teacher's effectiveness.

Results and Analysis

Highlights of Survey Results

Table 1A and 1B show the descriptive statistics of the respondents used in the regression analyses.

Table 1A

Profile of Respondents in the Quality Sample (N=385)

Variables	Range for All	Mean	SD[a]
Accounting Grade	0.00 – 4.00	2.07	0.82
College Entrance Test	39 – 99	83.68	10.85
English Proficiency	1.70 – 4.00	3.11	0.45
Math Proficiency	0.00 – 4.00	2.53	0.80
Study Habits	1.22 – 4.89	3.17	0.57
Study Hours[b]	1.00 – 398.05	97.63	68.63
Teacher Perception	1.00 – 5.00	3.27	0.99
Motivation	0.30 – 4.50	2.72	1.09
Level of Study Effort	1.00 – 5.00	3.82	0.83

[a] Standard deviation

[b] Adjusted for hours actually studying

Table 1B

Profile of Respondents in the Quality Sample (N=395)

Variable	Frequency	%
Gender		
Male	191	48.4%
Female	204	51.6%
Taken Accounting in High School		
Yes	144	36.5%
No	251	63.5%
Attended Review Classes in Tutorial Centers		
Yes	126	31.9%
No	269	68.1%

Finally, the measurement of the students' level of motivation to study accounting is based on Vroom's force model of expectancy theory, as described in Harrell, Caldwell & Doty (1985). This model proposed that the motivational force for an accounting student depends on the attractiveness of performing well ("valence") and the expectancy that a particular level of effort will result in good performance. The product of these two values (valence and expectancy) represents the intensity of the force (i.e., "motivation") to actually exert the effort. Harrell et al. (1985) reported good predictive ability with their instrument, with a multiple correlation coefficient of R = 0.85. Since the survey for this study was conducted after the semester, students' knowledge of their accounting grade may bias their expectancy rating a bit, as students who received higher accounting grades may think that they had put in greater effort. The student was first asked to determine on a scale of 1 to 5 how important it is to receive a decent/high grade in accounting (i.e., valence). The student was then asked what percent increase (10% to 90%, with 20% intervals) in accounting grade would have been received if greater effort were spent studying during the first semester (i.e, expectancy). According to the expectancy theory, a higher valence and expectancy lead to

higher motivation. In the light of these motivation-related items, the questionnaire asked the students to indicate again the level of effort they were willing to exert to study accounting during the first semester, on a scale of 1 to 5, from "low effort" to "great effort".

The coefficients ($ß_i$) are recomputed using standardized values by expressing each variable in standard deviation units such that all variables have zero means and unit variances (Gujarati, 2003, p. 173). This allows us to compare the relative effect of one standard deviation's change in an independent variable on student accounting grade. The higher the value of the coefficient, the greater is the relative effect of the variable related to the coefficient.

The mean accounting grade came out at 2.07 ("satisfactory" or close to "C")[2] while the English and Math GPA came out higher, at 3.11 and 2.53, respectively. The average College Entrance Test percentile score was 83.68. The sample was almost evenly split between male and female. About 36% had taken accounting during high school.

Over the semester, students spent 137.7 hours on average studying, but when adjusted for "actual" study time, this shrank to 97.6 hours (about 5.7 hours a week), or about 29% less. The decline in study time indicated that there were many sources of distraction (e.g. telephone, short message sending, television, computer chatting, sound systems, family members) that made it difficult for students to focus during their study time. About 32% took paid review sessions in tutorial centers. Almost a third of those who took high school accounting also went to tutorial centers.

Regarding study habits, the ones practiced most frequently were consultation with classmates and doing the homework, with means very close to 4 in a 5-point scale. The reliability measure (i.e., Cronbach alpha based on standardized items) for study habits is 0.675. Although this is a bit below the usual reliability threshold of 0.70, it is comparable to the mean alpha coefficient of the 36 studies in the meta-analysis regarding the predictive powers of psychosocial and study skill factors on GPA and college retention conducted by Robbins, Lauver, Le, Davis, Langley, and Carlstrom (2004). In their meta-analysis, the mean alpha coefficient of the academic-related skills construct, which includes study skills and habits, was 0.670, with a standard deviation of 0.178.

The mean rating of student perception of teacher effectiveness was near the middle of the range (3.17). What stood out among the responses was that students felt that their teachers were not able to sense if they are having difficulty with the subject, as this quality has the lowest average rating. This may explain why a third of the students were attending review sessions in tutorial centers. The standardized Cronbach's alpha for the four items in the teacher perception measure is 0.862.

The mean level of motivation was 2.72, about midway through the 1.0 to 5.0 range. Its standard deviation of 1.09 implies that about two-thirds of the respondents have motivation levels in the range of 1.69 to 3.81. Recall that motivation is the product of how important students deem to receive a decent/high grade in accounting and the percentage increase in accounting grade if greater effort were spent studying (Harrell et al., 1985). Comparing this mean level of motivation to the mean level of effort of 3.82 implied that students on average saw the effort they spent studying accounting as considerable, even in the face of relatively low grades.

Table 2 shows the correlation coefficients among the variables. Many of the independent variables are significantly correlated with each other. The ones which are significant at the 0.01 level and show coefficients greater than +/- 0.30 are the following pairs: Math proficiency & English proficiency (+0.412), study habits and level of effort (+0402), gender and high school accounting (-0.348), study hours and study habits (+0.332), and study hours

and level of effort (+0.315). Three of these pairs indicate that study habits, study hours, and level of effort are quite related to each other.

Regression Results and Discussion

CET, English proficiency, math proficiency, high school accounting, student perception of teacher quality, and level of effort emerged as predictors with 0.01 level of significance. In the reduced model using stepwise regression method which should produce the simplest equation with the best predictive power, these same predictors remain, except for the change in level of significance from 0.01 to 0.05 for level of effort. Multi-collinearity is not a problem in the regression results since VIF collinearity statistics are less than 2.0 for all variables. The adjusted R^2 is 0.393 for the full model, and 0.387 for the reduced model. (See Table 3, column I & II.)

Based on standardized coefficients (Table 3, Column III), math proficiency has the largest impact on the accounting grades (ß = 0.441) followed by student perception of teacher effectiveness (ß = 0.165), English proficiency (ß = 0.154), and high school accounting (ß = 0.128). Variables with lower levels of impact are level of effort (ß = 0.083) and College Entrance Test percentile score (ß = 0.003). It seems that the impact of College Entrance Test percentile score has been diminished due to the presence of math and English proficiency which provide a better and more current basis for the academic ability of the students.

That the first four variables in the regression model – College Entrance Test (CET), English proficiency, math proficiency, and high school accounting – are significant should not be surprising as numerous other studies have revealed their rather consistent effect on student achievement in accounting courses.

Table 2

Pearson Correlation Coefficients among Variables (N=385)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Acctg Grade	1.000	-.193**	.231**	.396**	.539**	.098*	.080	.167**	-.074	.191**	-.056	.181**
2. Gender		1.000	.080	-.256**	-.134**	-.164**	-.142**	-.348**	-.183**	-.001	-.006	-.052
3. CET			1.000	.184**	.152**	-.055	.064	-.058	-.227**	.096*	-.003	-.022
4. English Prof'y				1.000	.412**	.215**	.183**	.101*	-.057	.058	-.077	.171**
5. Math Prof'y					1.000	.074	.085*	.051	.004	-.010	-.046	.122**
6. Study Habits						1.000	.332**	.187**	.068	.229**	-.034	.402**
7. Study Hours							1.000	.048	-.013	.154**	.040	.315**
8. HS Accounting								1.000	.042	.018	-.003	.066
9. Tutorial Center									1.000	-.177**	-.049	.066
10. Teacher										1.000	.166**	.077
11. Motivation											1.000	-.096*
12. Level of Effort												1.000

Note. Highlighted cells are the independent variables which are significant at the 0.01 level and show coefficients greater than +/- 0.30)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3

Results of Regression Analyses (N=385)

Method[a]	I	II	III
Constant	-1.025 *	-1.598 **	
Gender	-0.141		
Coll. Entrance Test	0.010 **	0.010 **	0.003 **
English Proficiency	0.266 **	0.279 **	0.154 **
Math Proficiency	0.447 **	0.452 **	0.441 **
HS Accounting	0.192 **	0.219 **	0.128 **
Study Habits	-0.097		
Study Hours	-0.053		
Tutoring Centers	-0.049		
Teacher	0.158 **	0.138 **	0.165 **
Motivation	-0.035		
Level of Effort	0.119 **	0.082 *	0.083 *
Adj. R-squared	0.393	0.387	0.387
F-test p-value	0.000	0.000	0.000

[a] Regression methods: I – Enter, unstandardized coefficients; II – Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100), unstandardized coefficients; III - Enter, standardized coefficients.

** p-value < 0.01 level (2-tailed).

* p-value < 0.05 level (2-tailed).

The results in Table 3 show that among the SHSA variables, only student perception of teacher effectiveness and level of effort influence accounting performance, and have lesser impact that the control variables as a group. Note that while level of effort is highly positively correlated with amount of study time and study habits (Table 2), the other two variables are not significant in the regression model. Level of effort is a significant variable since it may include other elements of studying which are not captured by the quantity of study hours, such as the degree of concentration while studying, practicing on more difficult exercises, and the activities students had to give up (e.g., socializing with friends) to study accounting.

The factors used in this study are able to explain about 39% of the variability of accounting performance. This compares favorably to similar studies done in Asian countries, such as Hongkong (Gul & Fong, 1993) with an adjusted R^2 of 0.48, Malaysia (Tho, 1994) with 0.66, West Bank (Naser & Peel, 1998) with 0.17 and 0.19, and Singapore (Koh & Koh, 1999) with 0.21 to 0.24.

Differentiators of Accounting Performance

To check if the factors that determine accounting performance would be different for students who scored above the mean accounting grade (i.e., 2.07, or slightly above "C") and those who scored below the mean, the students were divided into these two groups. The mean values of the factors that could affect accounting performance were computed for each group, and the means of each factor were tested to see if they were significantly different for the two groups (See Table 4). It came as no surprise that most of the means which were significantly different for the two groups (with p-value <= 0.05) were

also the ones that were significant in the regression analysis. The mean scores of study habits (p-value = 0.050) were also significantly different, although study habits did not appear as significant in the regression analysis. The effect of study habits calls for a closer examination.

The study habits of the high-performing students whose means are significantly different from those of low-performance students at the 0.10 level or less are: cram for exams, read before class, do homework, and participate in class (Table 5). They are exactly the same as those found to be significantly correlated with accounting grades (correlation analysis not shown here). Reading ahead and

Table 4

Test for Equality of Means for Predictors of Accounting Performance

	Means			Table 3, column III
Accounting Grade	Group 1 >= 2.07	Group 2 < 2.07	p-value[a]	Reg'n Analysis p-value
Gender	0.380	0.580	0.000	
CET	85.929	81.637	0.000	**
English Proficiency	3.270	2.950	0.000	**
Math Proficiency	2.921	2.175	0.000	**
Study Habits	3.230	3.116	**0.050**	
Ln(Study Hours)	4.383	4.278	0.210	
HS Accounting	0.440	0.300	0.003	**
Tutoring Centers	0.290	0.340	0.244	
Teacher	3.430	3.123	0.002	**
Motivation	2.728	2.713	0.886	
Level of Effort	3.930	3.710	0.009	*

Group1 N = 183, Group2 N = 210 in most cases, unless data for some cases is missing.
[a]p-value of t-test for equality of means
** p-value < 0.01 level (2-tailed), * p-value < 0.05 level (2-tailed).

Table 5

Test for Equality of Means for Study Habits

	Means			
Accounting Grade	Group 1 >= 2.07	Group 2 < 2.07	p-value[a]	Correlate with AccGrade[b]
Consult classmates	3.86	3.96	0.320	
Group study	3.17	3.17	0.967	
Cram for exams	2.47	2.14	**0.003**	**
Read before class	3.34	3.14	**0.073**	**
Do homework	4.03	3.83	**0.023**	**
Participate in class	3.52	3.20	**0.001**	**
Take extensive notes	3.11	3.11	0.961	
Rewrite notes before class	1.90	1.99	0.465	
Practice on old exams	3.67	3.55	0.304	

Group1 N = 183, Group2 N = 210 in most cases, unless data for some cases is missing.
[a] p-value of t-test for equality of means
[b] Level of significance of Pearson correlation: ** p-value < 0.01 level (2-tailed), * p-value < 0.05 level (2-tailed).

doing the homework help students better participate in class, so these study habits are complimentary. Despite their engaging in these study habits, high-performing students still cram prior to exams. Even though they spent almost the same amount of total time studying as low-performing students, the cramming by high-performing students may be more of the nature of greater focus and concentration when preparing for exams. The students have access to a department-authored workbook that contains old exams which many teachers use to review the students prior to exams. High-performing students may have been working on something else when they crammed during the week before the exam, most likely solving exercises in the textbook or in other accounting books.

Conclusion, Implications, and Future Direction

This study supports many of the findings of researchers regarding factors that affect student performance in introductory financial accounting courses. Math proficiency, student perception of teacher effectiveness, English proficiency, high school accounting, and level of effort, in descending order, positively affect accounting performance. Gender, study habits, the amount of study time, and attendance in review classes seem to have no effect at all. Using standardized coefficients, this study shows that the effect of math proficiency was so strong that its effect was almost equal to the combined effect of all the other variables found to be significantly related to accounting performance.

In terms of SHSA factors, only perception of teacher effectiveness and level of effort significantly affect performance. Although study habits is not a significant factor in the regression analysis, there are significant differences in the study habits between high- and low-performing students when we test for the equality of their study habits mean scores. High-performing students engaged more frequently in reading ahead, doing the homework, and participating in class than low-performing students. High-performing students also cram more, though this may have to be interpreted as more intense preparation on the week before exams rather than more time spent preparing.

Here are some other implications that arise from this study:

1. Attendance in review classes conducted by independent tutorial centers seems to have no effect on accounting grades, even though about a third of the students in this study attended these classes. These classes may not have been helpful since they were handled by tutors who may be unfamiliar with the manner by which accounting is taught inside the university. Or, students who were enrolled in these classes may be already quite behind in their understanding of accounting such that these review classes were not helpful, after controlling for other factors that affect accounting grades.
2. Full-time accounting faculty are scarce in the Philippines since most professionals with CPA prefer to practice than teach. Those who do teach should be made aware of effective teaching practices, especially in sensing when students are having a hard time understanding certain concepts, and stimulating student interest in the lessons. It is important the accounting teachers be perceived by their students as effective, as this has a significant effect on accounting performance. Teachers' exhortations for students to engage in certain study habits would also be more credible.
3. Certain study habits which are highly correlated with accounting grade should be emphasized, such as doing homework, participating in class, reading prior to class, and practicing on old exams. Students should be made aware of how these habits contribute

to their learning. Resources such as department-recommended supplementary readings and exercises/ problems with check answers can be provided so that students can "cram" more productively.

4. Encouraging students to put in more effort may be trickier, since this is not necessarily the same as putting in more time to study. For instance, when preparing for exams, it is difficult to tell students how many practice tests or additional exercises are needed to pass or attain a certain score. The key may be to give students a better sense of self-efficacy, or in the context of the Expectancy Theory, higher expectancy, so that students gain an enhanced motivation to strive harder.

Areas for future research would be along the lines of better measurement of variables. For instance, attendance in review classes can be measured more carefully, such as the number of tutorial hours during the semester, or its frequency (number of times a week), the review mode (one-on-one, small group, or large group), or the quality of the tutoring center. These may reveal some positive relationship with accounting grades. Certain attitudinal or behavioral variables, such as motivation, perception of teacher effectiveness, and willingness to put in additional study effort, can be based on more standardized instruments, such as the ones described in the meta-analysis of Robbins et al. (2004) concerning psychosocial and study skill factors. This can improve construct reliability and allow for greater comparability with other studies. Finally, interaction among the predictor variables can be included in the regression analysis. It may be possible that the amount of time spent studying influences accounting performance for students who have low academic aptitude, or with good study habits. As was shown by Plant et al. (2005), the amount of time spent studying coupled with "deliberate practice" can improve academic performance.

Generalizing the results of this study may be a problem, given the specific context of the students taking their first accounting course at a Philippine university. But this is a common limitation for many studies that look into factors affecting accounting performance which use subjects from one or a few universities only, so the contribution of this study would be to provide more evidence regarding certain factors that affect or do not affect accounting performance in the Asian context.

Notes

1. This question is very similar to the one used in the studies described by Schuman et al. (1985).
2. The university uses Quality Point Index (QPI) to measure the academic performance of its students. The high end is 4.0 (Excellent or "A"), passing is 1.0 ("D"), and fail is 0.0 ("F"). QPI are in 0.5 increments from 1.0 to 4.0. The QPI is equivalent to the GPA system used in American universities.

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