

Factors Associated with Student Performance in Financial Accounting Course

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Abstract

In order to investigate factors associated with student performance in accounting course, eight variables that are likely to have impact on student performance were determined. The results indicated that gender and score in university entrance examination are not significantly correlated with student performance. Age of the student has negative significant influence on student performance. High school grade point average, prior knowledge of accounting, grade point average, attendance, and math grade are all significantly related to student performance in the financial accounting course.

Keywords: *Accounting, Education, Student Performance, Financial Accounting, Turkey*

Introduction

Determinants of student performance have attracted the attention of academic researchers from many areas. They have tried to determine which variables impact student performance in positive and negative direction. Research studies about this

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subject have been conducted by various academicians in various countries and areas (Mutchler, Turner, and Williams, 1987; Cheung and Kan, 2002; Kruck and Lending, 2003; Borde, 1998).

Determining the factors that affect the student performance is important. Because, primarily institutions and lecturers have to find out ways to increase student performance, and to motivate students for better performance. In order to do this, first they need to determine which factors play significant role in student performance. For example, if attendance increases student performance, lecturers can do something to increase students' attendance rate such as integrating attendance rate into grading policy. Secondly, graduating from different high schools may also play a significant role in performance. For example, graduates of commercial high schools who have prior knowledge of accounting may outperform graduates of ordinary high schools. In that case, graduates of other high schools can be supported by extracurricular course activities to catch up with graduates of vocational high schools for commerce. Furthermore, students' performance in universities are also a concern of corporations which are often said to be the "end user" in the supply chain of graduates for the labor market (Alfan and Othman, 2005). Therefore, increase in student performance also mean that universities are providing better employees for labor market.

This study aims to investigate factors associated with student performance for an introductory level accounting course in vocational schools. The organization of the remainder of this paper is as follows. Next section provides an extensive literature review about factors associated with student performance. Section three presents scope and methodology of the study. Fourth section assesses the results, and the final part provides the concluding remarks of this paper.

Literature Review

In previous studies, the researchers have been used various variables to investigate their association with student performance in accounting course. Grade point average (GPA), gender, math grade, attendance, living with family members or not, and age are just a few examples of variables that have been used in prior studies to investigate student performance.

Trine and Schellenger (1999) investigated factors that influence upper level finance course performance. They found no significant association for gender and age. However, they found positive significant effect of GPA, basic finance course grade, first financial accounting course grade, ACT Math score (standardized

achievement examination for college admissions in the United States), high school rank, living with family members. They found negative significant effect of sharing living accommodations with others, and number of job hours worked.

Mutchler et al. (1987) conducted an analysis over an 18 year-period and found that female accounting students outperformed their male counterparts. Tyson's (1989) key finding was also that female students tend to receive higher grades in upper division accounting courses.

Doran, Bouillon and Smith (1991) found that having taken high school bookkeeping course is found to be positively related to performance in Accounting Principles I and negatively related to performance in Accounting Principles II. On average, males are found to have significantly higher examination scores than females in Accounting Principles I, but not in Accounting Principles II.

Rayburn and Rayburn (1999) investigated factors that affect how well students learn the material covered in a management accounting class. Students with a high cumulative GPA and accounting majors performed better than their counterparts. Students who consistently completed homework performed better than those who did not.

Kirk and Spector (2006) found that GPA, performance in managerial accounting principles, performance in the statistics course, are all significantly related to success in cost accounting. Math achievement, student age, gender, the length of time between taking principles and cost accounting are insignificant.

Eskew and Faley (1988) investigated student performance in the first college-level financial accounting course. Academic aptitude (based on SAT scores), high school grades, college grades (GPA), number of quizzes (effort/motivation), previous related experience, previous accounting experience, are all significantly related to examination performance.

Tho (1994) conducted a study in the University of Malaya, on introductory accounting course. He proved that having studied high school accounting, mathematics and grades in high-school economics are important predictors of performance. The socio-demographic variables of gender and residential status do not contribute significantly to performance variability. Female students perform better than males.

Yee Lee (1999) proved that students who had passed accounting in one of the public examinations all outperformed students with no prior accounting qualification in Accounting I, but not in Accounting II. In Accounting II, student performance was mainly determined by GPA, performance in Accounting I, motivation (the intention of

major in accounting), and numerical ability (MATHS).

Gençtürk (2007) investigated student performance in financial accounting course in vocational schools. He found that graduates of vocational high schools for commerce are more successful than graduates of other high schools. Many previous studies found positive association between prior knowledge of accounting and accounting course performance, interestingly Byrne and Flood (2008) found no significant association between variables.

Özyürek (1981) examined the association between attendance and student performance, and she found a positive correlation between the two variables.

Gist, Goedde and Ward (1996) conducted their study about performance in principles of accounting course on black students. Among the factors studied, college GPA was the most important factor followed by SAT (Scholastic Aptitude Test) score and performance in calculus. Gender was not significant in explaining minority student performance in principles of accounting.

Suleiman and Mohezar (2006) conducted a study on Master of Business Administration students. They utilized just correlation analysis. Work experience, gender, age, and ethnicity were not significant in academic performance. Undergraduate performance (cumulative GPA), and undergraduate disciplines were significant. Students with business and management background performed better than other students.

A recent study conducted in Romania indicated that female and younger students have better performance than their male and older counterparts respectively (Razvan et al., 2010). The same study showed that high school type students graduated plays also significant role in student performance .

Since introductory accounting course is a core course in the curricula of business departments of universities, it is taught to students enrolled in those departments. Hence, comparison of student performance in different departments based on introductory accounting course is a subject of investigation. A Turkish study conducted such a study and showed that accounting program students significantly outperformed non-accounting (management, foreign trade, banking, and office management) program students (Güngörmüş and Uyar, 2010).

Sungkyoo et al. (2010) compared the performance of online and offline learners and found that there is no significant difference in student performances (test scores) between online learners and offline learners. However, some characteristics variables have differential effects on performances of online and offline learners. Specifically, the effects of GPA and gender on performance are significantly higher

for offline students than for online students.

Another recent study conducted in Saudi Arabia proved that the preuniversity accounting background, performance in financial accounting course, and skill in mathematics were found to have significant impact on management accounting course (Al-Twajiry, 2010). The findings of this study also confirmed that the load of weekly registered hours has no negative impact on the student performance. The comparison between accounting and non-accounting student performance proved that accounting students had outperformed non-accounting students. Moreover, the performance comparison between normal terms and summer terms confirmed that, ingeneral, students perform better in normal terms.

In a comparative study, an association was observed between student origin and accounting performance with superior performance reported for the international students compared to resident students after controlling for key variables (Hartnett et al., 2004). In this study, statistically significant relationships were also observed between accounting performance and ability, anxiety, employment experience in accounting, enrolment status and accounting study prior to university.

Scope and Methodology

Research Question

Based on the extensive literature review provided in the previous section, the following research question was prepared:

Is there any association between student performance in financial accounting course and the following variables: high school grade point average, age, gender, score in university entrance examination, being graduate of vocational high schools for commerce which refers to prior knowledge of accounting, attendance, grade point average, and math grade in the vocational school?

Sample

The sample of this study consists of first-year students enrolled in the Management (114 students) and Accounting (53 students) programs in Istanbul Vocational School of Fatih University. The sample includes the students who took the financial accounting course for the first time. Besides, they took fixed 20 hours of credit weekly. The data for the study was collected from the student information system and the teachers who

lectured the students in 2007-2008 academic calendar.

The collected data was recorded first on Microsoft Excel worksheet, and then transferred to SPSS 15.0 for Windows. In order to analyze the results, the Spearman correlation analysis, and the Stepwise multiple regression analysis were utilized.

Results and Discussion

Descriptive Statistics

The sample consists of 167 students of which 114 are Management program students and 53 are Accounting program students. The gender distribution of the sample is as follows: 78 students are male and 89 are female. According to the type of high schools, students were classified as graduates of vocational high schools for commerce (19 students) who have prior knowledge of accounting and graduates of other high schools (148 students). Other descriptive statistics about the sample is given in Table 1.

Table 1 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Dev.
Age	167	18	49	21.02	2.64
Score in university entrance examination	167	209.10	282.31	227.14	13.92
Attendance	167	22.22%	100.00%	84.3%	16.41%
High school GPA	167	51.33	95.83	71.13	9.29
GPA	167	0	4.00	2.20	0.76
Math grade	167	0	4.00	2.45	0.97
Accounting grade	167	0	4.00	2.11	1.34

Correlation Analysis Among Variables

Prior studies utilized the correlation and regression analyses to find out the determinants of student performance in accounting course. Therefore, the Spearman correlation analysis was conducted first. This analysis revealed the following significant associations (Table 2):

There is a negative significant association between student performance in accounting course and age of the student ($p < 0.01$). This means as the student's age grows the performance in the course is likely to decrease. The reason for this may be the gap between high school graduation and university enrollment. As this gap widens, motivation for to the lessons may decline. Secondly, during this gap the student is likely to have forgotten some basic high school knowledge. This finding supports the finding of Razvan et al. (2010) but does not support the result of Trine and Schellenger (1999), Kirk and Spector (2006), and Suleiman and Mohezar (2006) who found no significant association between age and student performance.

There is a positive significant association between student performance in accounting course and high school GPA of the student ($p < 0.01$). This means previous academic success of the student plays an important role in later years. Eskew and Faley (1988), and Trine and Schellenger (1999) also found a positive significant association between course performance and high school rank.

There is a positive significant association between student performance in accounting course and having graduated from vocational high schools for commerce which refers to prior knowledge of accounting ($p < 0.1$). This means the students who took accounting courses in high school are more likely to be successful than other students who have not taken accounting course in high school. The result of this test supports the findings of Doran et al. (1991), Eskew and Faley (1988), Gençtürk (2007), Tho (1994), Al-Twajry (2010).

There is a positive significant association between student performance in accounting course and GPA of the student ($p < 0.01$). The students whose overall successes are high are also successful in accounting course. This result supports the findings of Rayburn and Rayburn (1999), Kirk and Spector (2006), and Eskew and Faley (1988).

There is a positive significant association between student performance in accounting course and attendance ($p < 0.01$). This means the more the student attends to the lesson, the more likely he or she is successful in the course. This result

supports the finding of Özyürek (1981).

There is a positive significant association between student performance in accounting course and math grade ($p < 0.01$). The students who are successful in mathematics are also successful in accounting course. Because, accounting is partly a numerical lesson like mathematics. This result is opposite to the finding of Kirk and Spector (2006), but parallel to the findings of Tho (1994), Yee Lee (1999), Gist et al. (1996), and Al-Twajry (2010).

There is no significant association between student performance in accounting course and gender. This result supports the findings of Suleiman and Mohezar (2006), Trine and Schellenger (1999), Kirk and Spector (2006), and Tho (1994), but does not support the findings of Mutchler et al. (1987), Tyson (1989), and Razvan et al. (2010) who found that female students outperform male students.

There is no significant association between student performance in accounting course and score in university entrance examination. This means score in university entrance examination is not necessarily an indicator of academic performance.

Table 2: Spearman correlation analysis among variables

	Accounting grade	Gender	Age	High school GPA	Score in university exam	High school type	GPA	Attendance	Math grade
Accounting grade	1.000								
Gender	-0.119	1.000							
Age	-0.226***	0.150	1.000						
High school GPA	0.224***	-0.220***	-0.050	1.000					
Score in university exam	-0.066	-0.003	0.195**	0.243***	1.000				
High school type	0.135*	0.043	-0.281***	-0.212***	-0.550***	1.000			
GPA	0.596***	-0.323***	-0.036	0.377***	0.273***	-0.196**	1.000		
Attendance	0.414***	-0.057	-0.218***	0.009	-0.123	0.218***	0.308***	1.000	
Math grade	0.262***	0.012	0.034	0.233***	0.458***	-0.325***	0.439***	0.186**	1.000

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

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

* Correlation is significant at the 0.1 level (2-tailed).

Stepwise Multiple Regression Analysis

After having conducted the Spearman correlation analysis, the Stepwise multiple regression analysis was conducted to investigate the joint contribution of independent variables on the student performance in accounting course. Tho (1994), and Turner, Holmes and Wiggins (1997) used the same method in their study to find out determinants of student performance in accounting course. Based on the preceding section, the complete model is specified as follows:

$$\text{ACCOUNTING} = \alpha + \beta_1 \text{GENDER} + \beta_2 \text{AGE} + \beta_3 \text{HGPA} + \beta_4 \text{SCORE} + \beta_5 \text{TYPE} + \beta_6 \text{GPA} + \beta_7 \text{ATTENDANCE} + \beta_8 \text{MATH} + \varepsilon$$

Where,

ACCOUNTING: Accounting grade (ranges from 0 to 4)

GENDER: Gender of the student; 1 for male, 0 for female

AGE: Age of the student

HGPA: High school GPA

SCORE: Score in university entrance examination

TYPE: High school type; 1 for vocational high schools for commerce which refers to prior knowledge of accounting, 0 for other high schools

GPA: Grade point average in the vocational school

ATTENDANCE: Attendance

MATH: Math grade in the vocational school (ranges from 0 to 4)

The regression was run three times: for full sample, management program, and accounting program.

The stepwise multiple regression analysis for full sample produced three models. First model explains 35.1% (Adjusted R Square = 0.351) of variation in student performance ($F = 90.618$, $p < 0.001$). This first model has got only one significant independent variable, GPA. The coefficient beta indicates positive influence of GPA on the dependent variable ACCOUNTING.

The explanatory power of the second model for full sample (Adjusted R Square = 0.421; $F = 61.291$; $p < 0.001$) is higher than that of first model (Adjusted R Square = 0.351). This model contains two significant independent variables; GPA and TYPE. Beta coefficients of two variables show that both of them have significant positive impact on ACCOUNTING.

Third model for full sample is the best fitting model (Adjusted R Square = 0.445)

that explains variation in ACCOUNTING by 44.5% ($F = 45.430$, $p < 0.001$). In this model, three significant variables are included; GPA (standardized beta = 0.575), TYPE (standardized beta = 0.238), and ATTENDANCE (standardized beta = 0.187). Table 3 (PANEL A) shows the result of this most comprehensive model for full sample.

Since full sample consists of two program students (i.e. management and accounting), and each program students were lectured by different lecturers, we split file and run regression for each program students separately. The outputs were different than full sample output (Table 3, PANEL B and PANEL C). The results indicated that students' performance in accounting in management program was positively and significantly associated with GPA and TYPE (Adjusted R Square = 0.478, $F = 52.647$, $p < 0.001$). The regression result for accounting program students produced different result. GPA was again positively and significantly associated with student performance. Besides, ATTENDANCE was proved to be positively and significantly associated with student performance as well. The explanatory power of this model on student performance was higher than full sample model and management program model (Adjusted R Square = 0.596, $F = 39.284$, $p < 0.001$). This result motivated us to investigate the attendance averages of two programs. We saw that accounting program students attended to the lesson (on average 89 %) more than management program students (on average 82 %). This could be explained by the interest of accounting students in accounting course as they consider it one of their core courses.

Table 3 Stepwise multiple regression results for full sample, management, and accounting programs				
PANEL A: Full Sample	Predicted signs	Standardized Beta	t	Sig.
GPA	+	0.575	8.671	0.000
TYPE	+	0.238	3.906	0.000
ATTENDANCE	+	0.187	2.876	0.005
Adjusted R Square				
F-statistic				
Sig.				
PANEL B: Management				
GPA	+	0.699	10.215	0.000
TYPE	+	0.144	2.107	0.037
Adjusted R Square				
F-statistic				
Sig.				
PANEL C: Accounting				
GPA	+	0.552	5.112	0.000
ATTENDANCE	+	0.320	2.964	0.005
Adjusted R Square				
F-statistic				
Sig.				

Dependent variable: ACCOUNTING; Independent variables: GENDER: AGE, HGPA, TYPE, SCORE, GPA, ATTENDANCE, and MATH.

Conclusion and Suggestions

This study investigates factors associated with student performance in the financial accounting course. The sample includes 167 students enrolled in the Management and Accounting programs of Istanbul Vocational School of Fatih University, Turkey.

In order to investigate the determinants of student performance in accounting course, existing literature was reviewed. Based on the prior literature, eight variables were determined. Initially, the correlation between these eight variables and the student performance in accounting course was analyzed by the Spearman correlation analysis. The results indicated that six out of eight variables are significantly correlated with student performance in accounting course. Gender (GENDER) and score in university entrance examination (SCORE) are not significantly correlated with student performance. Age of the student (AGE) has negative significant influence on student performance. High school GPA (HGPA), high school type (TYPE), grade point average (GPA), attendance (ATTENDANCE), math grade (MATH) are all significantly positively related to student performance in the financial accounting course.

Moreover, the Stepwise multiple regression analysis was conducted to investigate the joint contribution of independent variables on student performance in the financial accounting course. The most comprehensive model for full sample has an explanatory power of 44.5% on student performance. According to this model, GPA, TYPE, and ATTENDANCE are positively significant variables which influence student performance. The adjusted R-squared (0.445) of this model is said to be neither high nor low compared to other studies. For example, Doran et al. (1991) found 0.30 for Accounting I and 0.55 for Accounting II. Eskew and Faley (1988) found 0.54 for the first college-level financial accounting course. Tho (1994)'s model produced 0.66 of adjusted R-squared. Yee Lee (1999) found 0.35 for Accounting I performance, and 0.486 for Accounting II performance.

According to the findings, attendance is significantly positively related to student performance. Therefore, institutions and lecturers should find out the ways to motivate students to the courses. For example, lecturers can motivate students by integrating attendance rate into grading policy. Secondly, graduates of vocational high schools for commerce outperform graduates of other high schools. Therefore, graduates of other high schools can be supported by extracurricular course activities to catch up with graduates of vocational high schools for commerce. Furthermore, graduates of vocational high schools for commerce and graduates of other high schools can be separated into different sections if quantity of students is enough.

There are two main limitations of our study, and future research can be conducted to broaden our analyses in these two aspects. Since this research has been based on students from only Fatih University which is a foundation university, generalization of the results to other universities should be viewed with caution. For further research, it is recommended that similar study could be conducted at other foundation and state universities. Another suggestion is that the determinants of student performance are not certainly limited to eight variables used in the study. For example, Uyar et al. (2011) proved that "interest in the accounting field" and perceived "job opportunities in the accounting field" have significant positive impact on student performance in the accounting course. Hence, more variables can also be used in future studies, such as environmental factors, living conditions, motivation, lecturer performance etc. Besides, similar studies can be conducted in other disciplines as well.

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