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DO WOMEN ACCOUNTING STUDENTS OUTPERFORM MEN? A QUEST FOR UNIVERSAL TRAITS

This study investigates the patterns of academic performance by gender in a developing country in a stereotypical male profession and non-feminine career path. Data are gathered from Business Administration students of Bilkent University, Turkey. The findings of the present study correlates with earlier studies in western cultures in that (1) female accounting students outperform male accounting students significantly, (2) the interactive relationship between the gender of the instructor and the gender of the students suggest that female students do significantly better with female instructors.

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INTRODUCTION

This study investigates the patterns of academic performance by gender in a developing country in a stereotypical male profession and non-feminine career path. This research reports on the results of a study on performances of Business Administration students in Accounting courses by gender in a Turkish University. Thus an attempt is made to discover if there exist universal traits in student performances by gender.

Turkey is a non-western, Islamic, developing country in which education as an institution has been revised by the reforms of Ataturk upon the establishment of the Turkish Republic in 1923. These reforms include: (l) the adoption of latin alphabet instead of the arabic alphabet as the medium of instruction, (2) compulsory five year primary education for both boys and girls at the age of seven, and (3)

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secularization of education. As a result of these reforms, the institutional limitations that existed before the Republic were eliminated to some extent.

Following the establishment of the Republic, the number of girls in primary education, high schools and higher education has increased significantly [Öncu, 1979, Erkut 1982]. Even though the institutional limitations have been eliminated by these reforms to a great extent, the cultural prejudice towards women's role in the society still exist. Women's primary role is still defined by the domestic sphere, as mothers and housewives [Ergüder, Esmer & Kalaycıoğlu, 1991]. This prejudice influences the ratio of female to male at all levels of enrollment. Gender discrimination becomes significant especially after primary school. The ratio of girls to boys decrease tremendously from 48 % in Primary to 35% in Junior High school level. However., this ratio stays almost constant at 32% at the university level [Gök, 1989]. This finding suggests that women who have the opportunity to attend high school use this opportunity to continue in higher education. Therefore, the inquiry of success of female students in college becomes more interesting in the Turkish context.

In the last decade, percentage of female students in total student body has increased substantially from 26% in 1980 to 32% in 1985 [Gök,1989] but their performances have not been studied in detail yet. The existing studies on education and women in Turkey, mainly focus on demographic and geographical aspects of education and concludes the ways in which women are disadvantaged [Gök, 1989, Erkut, 1982]. In that respect, this is the first study that examines the gender effect in Turkish higher education.

In this paper an attempt is made to compare the results of previous studies on the effects of gender on student performances conducted in western cultures [Lipe,1989; Tyson 1989; Mutchler et.al., 1987; Hanns & Shivaswamy, 1985; Fraser et. al., 1978; Hendricks, 1978, Weston & Matoney, 1976] with the results obtained in a non-western, islamic developing country, Turkey.

Furthermore, Business Administration career is a stereotypical male profession and Accounting courses are quantitative in nature. Therefore, the "non-feminine" nature of the course and the "non-feminine" career prospects stand as challenges for female students of this sample.

LITERATURE REVIEW

Literature on the performance of accounting students focus mainly on three areas of research (1) whether the female students perform better than the male students, (2) whether the instructor's gender has any impact on the performance of the students, and (3) determinants of student success.

Earlier studies by Hanks and Shivaswamy [1985] and,Fraser et. al., [1978] do not display any significant superior performance of female accounting students. On the other hand, Hendricks [1978], Weston and Matoney [1976], and Weston and Matoney [1976], Lipe [1989] and Mutchler et.al. [1987] present statistically significant findings on female students' better performances in different levels of accounting courses.

Mutchler et.al. [1987] conduct a longitudinal and crosssectional study and find that female consistently outperform male, and female students perform better in female instructed classes while men students perform better in male instructed classes. Lipe's study [1989] tested the generalizability of Mutchler et.al.'s study [1987] by conducting a similar research in an environment with fully coordinated grading policy. The findings of Lipe [1989] suggest that neither student gender nor instructor gender impact student course scores, except through the interaction of the two.

RESEARCH DESIGN

Data for this study are obtained from the files of Business Administration students of Bilkent University who have taken two Introductory Accounting courses (MAN 211, MAN 212). These courses are taught during the sophomore year in fully coordinated sections meeting 3 hours a week. Both MAN 211 and MAN 212 are required courses for Business Administration and Economics majors and occasionally Engineering students take the courses as electives. Students from departments other than Business Administration are excluded from the study in an attempt to homogenize the sample. Two female and two male instructors with Ph. D. s lecture in six sections with approximately 30 students in each and students are randomly assigned to the sections by the initial of their last names.

In Table I, summary information regarding the sample characteristics is presented. The sample includes 124 students of which

65% are male and 35% are female; and 75% of the students knew English before entering the University.

Performance in Introductory Accounting courses is hypothesized to be related to the overall performance of the students, background of the students and an interactive relationship of instructor and student gender.

Results of earlier studies suggest that past grades and grade point averages are positively associated with future student performances [Eckel & Johnson,1983; Hicks & Richardson,1984; Ingram & Petersen, 1987]. Eskew and Faley [1988] attempted to explain the variance in student performance by using a multiple regression model and found that aptitude, having had bookkeeping in high school and cumulative college grade point average (from here on GPA) are significant explanatory variables. Doran, Bouillon and Smith [1991] extended Eskew and Faley's study [1988] by including performance in first principles course and gender based variables. They found that being an accounting major, ACT scores, cumulative GPA, grade received in first principles course are significantly correlated with performance in both accounting principles courses. However, high school bookkeeping, student gender, interaction of student and instructor gender do not appear to be consistently associated with student performance.

Table I
DEFINITION AND DESCRIPTION OF THE VARIABLES

DEPENDENT VARIABLES:

(C3,C4) M211 and M212: Grades received in the first and second introductory accounting courses respectively: (Range 0 - 4)

	M211		M212	
	Average	Std.Deviation	Std.Deviation	Average
Men	2.43	0.99	2.12	1.11
Women	2.79	0.85	2.34	0.93
All	2.56	0.96	2.20	1.06

INDEPENDENT VARIABLES:

(C2) Student Gender:	Number	%
Men (0)	81	65
Women (1)	43	35
(C16) Instructor Gender:	Number	%
Men (0)	2	50
Women (1)	2	50

Background Variables:
(C10,C11): Grades received in Calculus (I and II); and (C12,C13) Sociology and Psychology Courses: (Range 0- 4)

	MATH 101		MATH 102		SOC 101		PSYCH 102	
	Avg.	Std.D.	Avg.	Std.D.	Avg	Std.D.	Avg.	Std.D.
Men	2.43	1.21	2.21	1.31	2.42	0.95	2.29	1.08
Women	2.67	1.08	2.43	1.18	2.77	0.77	2.72	1.10
All	2.52	1.17	2.29	1.27	2.54	0.90	2.44	1.11

Performance in Overall Success Measures:
(C7) Knowledge of English before entering the university:

	Yes (1)		No (0)	
	Number	%	Number	%,
Men	60	74	21	26
Women	33	77	10	23
All	93	75	31	25

(C8) University Entrance Examination Score(OSYM):(Range 360-550)

	Average	Std. Deviation
Men	428. 08	29. 67
Women	435.75	24.86
All	430. 74	28. 33

(C14,C15) First year and second year grade point averages(GPA 1 and GPA 2) and (CS,C6) Grade point averages of semesters MAN 211 and MAN 212 are taken (GPA 3 and GPA 4)and (C9) Cumulative grade point average at graduation or as of the last semester(CGPA):(Range 0-4)

	GPA 1		GPA2		GPA3		GPA4		CGPA	
	Avg	Std. D.	Avg.	Std. D.	Avg.	Std. D.	Avg.	Std. D	Avg.	Std.D.
Men	2.45	0.68	2.43	0.60	2.43	0.70	2.14	0.79	2.47	0.50
Women	2.91	1.42	2.55	0.64	2.66	0.59	2.18	0.76	2.56	0.56
All	2.64	1.03	2.47	0.61	2.51	0.67	2.16	0.67	2.50	0.52

Employing and extending the explanatory variables used in previous studies, overall performance of the students is measured by using the following variables:

(1) GPA (Grade Point Average) during the semester MAN 211 was taken (C5),
(2) GPA during the semester MAN 212 was taken (C6),
(3) Being graduate of a high school where the medium of instruction is English (C7),
(4) University Entrance Exam score (C8),
(5) Cumulative GPA at graduation or as of the last semester (C9),
(6) Cumulative GPA at the end of the first year (C14), and
(7) Cumulative GPA at the end of the second year (C15).

Background of the student is defined as the appropriate preparation for an introductory accounting course. Relevant background for the course requires that the student has analytical abilities and comprehension skills. Analytical abilities are measured by the grade received in the first year calculus (MATH 101 and MATH 102) (C10 and C11 respectively). Comprehension skills are measured by the grade received in first year sociology (SOC 101) and psychology (PSYCH 102) courses (C12 and C13 respectively). Furthermore MAN 211 grade (C3) is assumed to be a predictor of MAN 212 performance and is used as the last background variable for MAN 212.

Multiple regression models presented in Table II are utilized to test the validity of the hypothesized relation between the grades received in the introductory accounting courses and overall performance and background variables.

Table II

FORMULATION AND SPECIFICATION OF REGRESSION MODELS USED IN THE ANALYSES

BACKGROUND ANALYSIS:

MODEL IA: MAN 211 BACKGROUND ANALYSIS

$$C3 = \beta_0 + \beta_1 C10_i + \beta_2 C11_i + \beta_3 C12_i + \beta_4 C13_i + e_i$$

MODEL IB: MAN 212 BACKGROUND ANALYSIS

$$C4 = \beta_0 + \beta_1 C3_i + \beta_2 C10_i + \beta_3 C11_i + \beta_4 C12_i + \beta_5 C13_i + e_i$$

OVERALL PERFORMANCE ANALYSIS:

MODEL IIA: MAN 211 OVERALL PERFORMANCE ANALYSIS

$$C3 = \beta_0 + \beta_1 C5_i + \beta_2 C6_i + \beta_3 C7_i + \beta_4 C8_i + \beta_5 9_i + \beta_6 C14_i + \beta_7 C15\ i_4\ e_i$$

MODEL IIB: MAN 212 OVERALL PERFORMANCE ANALYSIS

$$C4 = \beta_0 + \beta_1 C5_i + \beta_2 C6_i + \beta_3 C7_i + \beta_4 C8_i + \beta_5 9_i + \beta_6 C14_i + \beta_7 C15\ i_4\ e_i$$

Gender effect is first tested by using analysis of variance (ANOVA) to see whether students' course grades (C3, C4) are affected by instructor gender (Cl6) and student gender (C2). Furthermore ANOVA is used to test the effect of student gender on the variables that were found significant in determining accounting grades in the stepwise regression equations.

FINDINGS

Stepwise multiple regression analysis identified the following background and overall performance variables as predictors of grade performance in MAN 211 and MAN 212. As presented in Table III, MATH 101 (C10) grade is found to be the significant background variable for MAN 211 ($p<0.01$, $R^2=0.23$) while MATH 102 (C11) and MAN 211(C3) grades are statistically significant background predictors for MAN 212 ($p<O.Ol$, $R^2=0.43$).

Table III

ANALYSES OF BACKGROUND VARIABLES

MODEL IA: ANALYSIS FOR MAN 211
Dependent variable: C3

Significant Independent Variables	Coefficient(std)	t-test	p≤
C10	0.397 (0.07)	6.13	0.0001
constant	1.560 (0.18)	8.67	0.0001

R-square (adjusted) = 22. 9 % F = 37. 6 (p≤ 0. 0001)

MODEL IB: ANALYSIS FOR MAN 212

Dependent Variable: C4

Significant Independent Variables	Coefficient (std)	t -test	p≤
C3	0.490 (0.08)	6.07	0.0001
C11	0. 272 (0. 06)	4. 56	0. 0001

R-square (adjusted) = 43. 3 % F = 45. 22 (p≤ 0. 0001)

The overall performance predictors displayed in Table IV show that University Entrance Exam scores (C8) and GPA during the semester MAN 211 is taken (G5) are the significant predictores of MAN 211 grades (p<O. Ol, R^2=0.597). Similarly, the significant overall performance predictors of MAN 212 grades are University Entrance Exam score (C8) and GPA during the semester MAN 212 is taken (C6) (p<0. Ol, R^2=0. 676).

Table IV

ANALYSES OF OVERALL PERFORMANCE MEASURES

MODEL IIA:ANALYSIS FOR MAN 211
Dependent variable: C3

Significant Independent Variables	Coefficient(std)	t-test	p≤
C5	1.03 (0.085)	12.11	0.0001
C8	0.05 (0.002)	2.51	0.01
constant	2.28 (0.860)	-2.65	0.01

R-square (adjusted) =- 57.7% F = 84.73 (p≤0.0001)

MODEL IIB:ANALYSIS FOR MAN 212
Dependent variable: C4

Significant Independent Variables	Coefficient (std)	t-test	p≤
C6	1. 080 (0. 07)	15. 43	0. 0001
C8	0.005 (0.001)	5.00	0.001
constant	-2.070 (0.83)	-2.50	0.01

R-square(adjusted) = 67.6 % F = 129 (p≤0.0001)

ANOVA results shown in Table V reveal that female students received significantly higher grades in MAN 2ll ($p<0.05$) and slightly but not significantly ($p<0.27$) higher grades in MAN 212. However, ANOVA do not reveal significant results for the impact of instructors' gender on student grade performance in Introductory Accaunting courses.

Table V

STUDENT AND INSTRUCTOR GENDER ANALYSIS OF VARIANCE

STUDENT GENDER:

MAN 211

Source of Variation	df	SS	MS	F	p
C2	1	3.494	3.494	3.86	0.05
Error	122	110.432	0. 905		
Total	123	113.926			

MAN 212

Source of Variation	df	SS	MS	F	p
C2	1	1.37	1.37	1.22	0.27
Error	122	137.27	1.13		
Total	123	138.64			

INSTRUCTOR GENDER :

MAN 211

Source of Variation	df	SS	MS	F	p
C16	1	0.685	0.685	0.74	0.39
Error	116	107.735	0. 929		
Total	123	108.419			

MAN 212

Source of Variation	df	SS	MS	F	p
C16	1	0.18	0.18	0.17	0.68
Error	116	124.23	1.07		
Total	123	124.41			

Results of ANOVA to test the student gender effect for the predictor variables given in Table VI reveal that the gender effect is not significant in MATH lOl (C10), University entrance scores (OSYM) (C8),and GPA during the semester MAN 212 is taken (GPA 212) (C6). However, female students significantly outperform male in MATH 102 (C11) (p=0.05) and their GPA during the semester MAN 211 is taken (GPA 211) (C5) is significantly higher than the male's ($p< 0.07$).

Table VI

STUDENT GENDER ANALYSIS OF VARIANCE FOR SIGNIFICANT VARIABLES

OSYM (C8)

Source of Variation	df	SS	MS	F	p
C2	1	1654	1654	2.06	0.15
Error	122	97884	802		
Total	123	99538			

GPA 211 (C5)

Source of Variation	df	SS	MS	F	p
C2	1	1.50	1.50	3.36	0.069
Error	122	54.51	0.45		
Total	123	56.01			

GPA 212 (C6)

Source of Variation	df	SS	MS	F	p
C2	1	0.04	0.04	0.06	0.81
Error	122	75.77	0.621		
Total	123	75.81			

MATH 101 (C10)

Source of Variation	df	SS	MS	F	p
C2	1	1.58	1.58	1.14	0.29
Error	122	169.10	1.13		
Total	123	170.68			

MATH 102 (C11)

Source of Variation	df	SS	MS	F	p
C2	1	3.17	3.17	3.92	0.05
Total	122	93.65	0.71		
Error	123	96.82			

The combined effect of instructor and student gender is tested by two-way ANOVA,and student grades in MAN 2ll ($p<0.098$) and MAN 212 ($p<0.06$) are found to be significantly correlated with student and instructor gender (Table VII). The results of Bonferroni procedure for multiple correlations reveal that female accounting students do significantly better with female instructors ($p<0.03$).

Furthermore, education plays a significant liberating role for women. Through education women can increase their life-chances in the job market as well as their bargaining power at the domestic sphere, namely family. As Erkut [1982] argued women's employment in the professional jobs are enjoyed as improved' income and prestige of the family in Turkish context because of the fairly inexpensive domestic help offered by the illiterate women masses. As a result, the chance of building a traditional family is not in jeopardy for college graduate women. Women are highly motivated to succeed at school not only to do better in the job market but also to acquire more power in the domestic sphere. Therefore, there is much at stake for women than for men in performing better in education. Even though it can be argued that male do feel the pressure to support their future families as bread winners, the significance of education is much more complicated for women. For women, education is a ladder not only to a wealthier life but also to a more liberated life because of the power gain in the domestic sphere.

Finally, the relationship between gender and work habits should be discussed. Both in western and non-western cultures traditionally women are held responsible for housework which requires efficient organization of limited time for unlimited domestic chores. Therefore, women learn to be efficient and arganized in domestic sphere, and when they utilize these habits in another domain, such as education, it is no surprise that they become more successful than male.

The striking similarities between the findings of this study and previous studies conducted in western cultures imply possible universal traits in female students' outperforming male in a stereotypical male career path-accounting education. These findings open avenues for further comparative research in performance of students by gender in western and non-western cultures.

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