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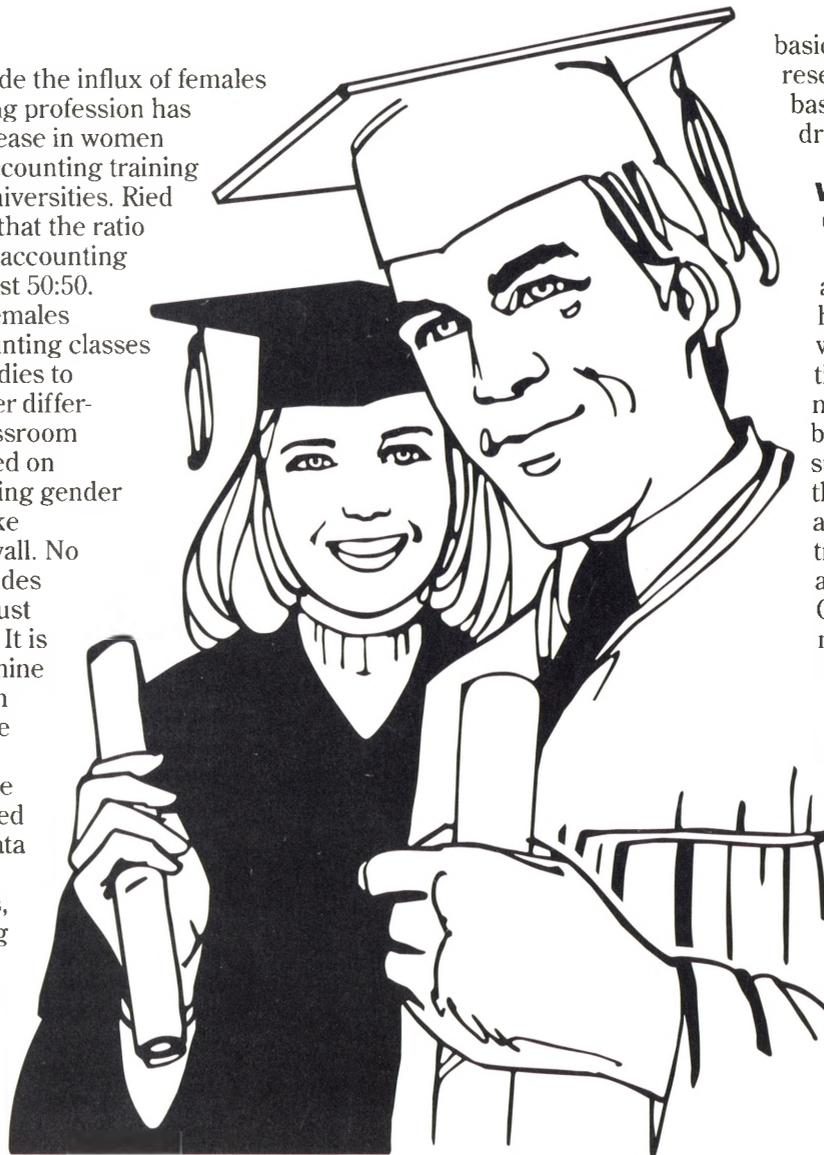
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A Synthesis of Research Studies on the Performance of Male and Female Accounting Students

By Lowell K. Williams, DBA, CPA

Introduction

In the last decade the influx of females into the accounting profession has prompted an increase in women seeking formal accounting training at colleges and universities. Ried et al. [1987] note that the ratio of male to female accounting graduates is almost 50:50. The increase of females enrolling in accounting classes has prompted studies to determine whether differences exist in classroom performance based on gender. Researching gender performance is like building a brick wall. No single study provides the whole wall – just one of the bricks. It is important to examine the literature from time to time to see how the wall is coming along. The research conducted so far has used data obtained from a variety of settings, and under varying circumstances to lend support for the findings. The purpose of this paper is to summarize the



basic motivation and results of research studies addressing gender-based accounting performance and draw some overall conclusions.

Why Study the Gender Issue?

Classroom performance of male and female accounting students has been studied to determine whether gender-based educational needs exist and what, if any, modification to instruction might be appropriate. For example, suppose future research shows that differences in academic accounting performance can be traced to females' having a higher aptitude for qualitative classes. One way to increase male performance might be to add nonquantitative illustrations to accounting textbooks. On the other hand, if differences are found because females take their studies more seriously than males, then the way careers are discussed, not the teaching methods should be examined [Mutchler et al. [1987, p. 110]. If differences exist, identifying them may help accounting educators to be better equipped to provide opportunities for all students to reach their potential as they enter accounting careers.

Limitations of Research

The examination of several research studies within an area is important because each study has limitations regarding its validity and generalizability. All of the studies dealing with gender performance in accounting courses have one or more of the following shortcomings: 1) using only one university/college and thereby limiting the generalizability of results outside the study, 2) using only introductory courses where the validity of subjects used is questionable because many non-accounting students take introductory courses, 3) using many accounting courses and thereby not allowing interpretation to a particular type of accounting course, and 4) not controlling for variables that could influence student performance (e. g., student ability and motivation).

Results of Gender Performance Studies

Exhibit 1 provides an overview of studies where the performance of males and females were compared in accounting courses. The studies use different measures of performance based on points earned or letter grade received. Sample selections were typically from one institution; however, studies by Mutchler et al. [1987] and by Williams [1990] took samples from more than one institution. Several approaches were taken in the selection of courses – some researchers used introductory (principles) courses, and others used upper-level courses. Some studies used several sections of a single course, while others used a variety of accounting courses.

Male Versus Female

Fraser et al. [1978] and Hanks and Shivaswamy [1985] found females scored slightly higher than males, while studies by Lipe [1989] and Williams [1990] found males to score slightly higher. However, none of the differences in these studies were statistically significant.

Significant results were reported in other studies. Bayes and Nash [1989] reported that females performance significantly higher than males in intermediate accounting and the accounting information systems course. Mutchler et al. [1987] reported that females significantly

outperformed males in various upper-level accounting courses based upon analysis of longitudinal data (from one auditing instructor over an 18-year period) and cross-sectional data (from ten different instructors in three different schools). Tyson [1989] also reported that females received significantly higher performance measures in introductory accounting. However, when measures of academic ability were controlled, sex no longer had any significant impact. Tyson also noted that females had higher overall grade point averages than did male students, suggesting that the superior performance of females was not unique to accounting.

Researchers have proposed reasons why some studies have shown females to outperform males in accounting courses. Mutchler et al. [1987] proposed four possible explanations for female students performing better than male students. They were 1) female students may be driven to outperform their male counterparts in order to gain acceptance in the stereotypically male accounting profession, 2) females may be more motivated to succeed and more vocationally mature during college years than their male counterparts, 3) females may have a higher quantitative aptitude than males, and 4) females who select the once male-dominated profession of accounting may be perceived by instructors as more intelligent than male students who are selecting a typically male occupation. Lipe [1989, p. 145] notes that each of these explanations would have different implications for educators.

The first explanation would lead to concerns about the stress levels of females in accounting courses and on the job. The second explanation would involve motivational methods targeted at male accounting students. The third explanation would concern the ability of male students and creating a learning environment to meet their needs, while the fourth explanation concerns the fair and equitable treatment of male accounting students.

The first two explanations relate to extrinsic motivation and the third to aptitude differences between male and female accounting students.

However, Tyson [1989] posits that the suggestion that female accounting students are more career oriented and career motivated than their male counterparts is suspect. He contends that empirical research has shown that female students have

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lower expectations regarding salaries, and success concerning their accounting careers than did their male counterparts [1989, p. 156]. Tyson also notes that suggesting females perform higher in accounting courses due to their higher quantitative aptitude is unsupported by a number of researchers who have empirically determined that males, not females, display higher math achievement [1989, p. 156]. The fourth explanation has not been addressed in other studies, and therefore has not been confirmed or disconfirmed.

Personality Traits

One area that seems extremely promising in explaining why females have outperformed males is gender-based personality traits. Two studies have examined the personality traits and motivations of female and male accounting students. Fraser et al. [1978] found that although there were some personality differences, female accounting majors were more like male accounting majors than other females not majoring in accounting in two areas related to career motivation. Female accounting students showed significantly higher achievement needs and had more endurance than other college-age females. However, females in the study had essentially the same levels of achievement and endurance as the male accounting students studies.

Like Fraser et al. [1978], Tyson [1989] found no significant differences in extrinsic motivation between male and female accounting students.

Exhibit 1
Research Studies on Performance of Male and Female Accounting Students

Study (Year)	Measure	Sample Size	Courses Selected	Major Findings
Fraser et al. (1978)	Grade point average in class	Seven courses over five semesters; one institution	Various upper-division accounting courses	Females outperformed males in 25 of 35 classes, but only 3 were significant.
Hanks & Shivaswamy (1985)	Quartile rankings	435 students; 2 instructors; one institution	Cost accounting	Females outperformed males but difference was not significant Female was top scorer in 11 of 17 classes.
Mutchler et al. (1987)	Total points earned standardized by researchers into Z-scores	A) 1,110 students; 10 instructors; 3 institutions B) 1,815 students; one instructor over 18-year period	Various upper-division accounting courses	Females outperformed males in both the cross-sectional and longitudinal data sets. Female-instructed students received higher scores than male-instructed students.
Bayes & Nash (1989)	Grade point average in class	153 students (measured repeatedly); 7 instructors; one institution	Intermediate and accounting information systems (AIS)	Females outperformed males in both intermediate and AIS.
Lipe (1989)	Points earned on a strictly coordinated grading policy	401 students; 25 classes; 10 instructors; one institution	Introduction to managerial accounting	No significant difference between males and females. Males outperformed females when taught by a male, and female-taught females outperformed male-taught females.
Tyson (1989)	Standardized points earned and a measure of motivation and ability Cumulative GPA and course grade	Approximately 200 students (primarily non-accounting); 7 classes; 3 instructors; one institution	Introductory accounting	Females outperformed males on 3 measures of performance. No significant difference between males and females when measures of ability (GPA and class rankings) were controlled as covariates. Regression model derived to predict performance; GPA and math SAT scores were good predictors - gender was not. No significant difference between genders in ability measures.
Williams (1990)	Total points earned standardized by researchers into Z-scores	946 students; 10 instructors; 9 institutions	Last intermediate course	No significant difference between males and females. No significant interaction between instructor gender and student gender.

However, Tyson, using different personality trait classifications than in the Fraser study, found differences between the sexes in intrinsic motivation². Females scored significantly higher than males on "work needs" (the desire to perform a task well), slightly lower on "mastery needs" (the desire for new and challenging tasks), and significantly lower on "interpersonal competitiveness needs" (the desire to outperform others). Tyson cited research indicating that academic performance was positively correlated with high work and mastery needs and negatively correlated with high interpersonal competitiveness. He concluded that females presumably outperformed their male counterparts because of the higher intrinsic work needs of women.

Male Instructors Versus Female Instructors

The effect of instructor gender in student performance has been examined with conflicting results. Mutchler et al. [1987] found that the sex of the instructor was related to the performance of the student. Female instructors were found to have higher (and less extreme) grades for both male and female students than male instructors. This would indicate that the female instructors were either better instructors or did not grade as hard as their male counterparts. However, this finding was not supported by Lipe [1989], who showed that students' scores were not statistically associated with instructor gender.

Instructor and Student Gender Interaction

Another issue examined in prior gender performance studies was the interaction of the instructor's and student's gender. Lipe [1989] examined the performance of: 1) male students with male instructors, 2) male students with female instructors, 3) female students with male instructors, and 4) female students with female instructors. Lipe found significant differences showing male students outperformed female students in classes taught by male instructors and that female students with female instructors outperformed females taught by male instructors. This finding suggests

instructors are more effective for students of their own sex. Lipe noted that the effect may have occurred because males and females have different learning styles that mesh with the teaching styles of instructors of their own sex. For example, a female having a female learning style might perform better with a female instructor who has a female teaching style.

Although Williams [1990] found that instructor gender and student gender did not have an interactive effect, further research should provide more clarity in this area. If matching learning styles is a factor, accounting programs could measure learning styles of students (especially those of marginal students) and the teaching styles of accounting faculty; then, where possible, students and instructors with consistent styles could be matched.

Conclusions

The number of females entering the accounting profession, and therefore entering the accounting classroom, has prompted the study of academic performance of male and female accounting students to determine if gender-based educational needs exist and what, if any, changes educators might make to meet those needs.

Although there is some evidence that females outperform males in accounting classrooms, review of the present body of research shows mixed results. Several studies have shown females to perform better than males; however, only two of them showed statistically significant differences (Mutchler et al. [1987] and Bayes and Nash [1989]). The Mutchler et al. [1987] study was a major research effort supporting gender-based differences. The researchers presented four theories, primarily related to the motivation and ability of genders, to explain why differences may have occurred. However, subsequent studies by Lipe [1989], Tyson [1989], and Williams [1990] have not supported the existence of gender-based performance differences. None the less, reasons for the differences in gender-based accounting performance found by Mutchler et al. should be examined through further study. Future research may address questions

regarding the existence of gender-based teaching styles and the feasibility of matching students and instructors (Lipe [1989]). Secondly, research may address differing motivational aspects of students. Examination of the intrinsic work needs of males and females seems to be an area that may provide insights for gender-based differences found in the past (Tyson [1989]). Thirdly, questions concerning whether instructors in upper-level accounting courses perceive female students to be superior to male students might provide answers (Mutchler [1987]). However, reasons for differences found in prior studies may be due to causes unique to those studies and therefore are not generalizable outside those groups studied. Whatever the outcome, such efforts could yield valuable insights and lead to improvements in the educational training and career placement of accountants of both genders.

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