

# Gender Differences In Accounting Student Attitudes And Experience Towards Computers

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## Abstract

*A number of previous studies state females have a less favorable attitude towards and less experience with computers than males. Because of the recent ability of being able to specialize in accounting information systems (AIS) within the accounting major and because females make up the majority of accounting majors today, the possible gender gap concerning computers is of particular interest in the field of accounting education. This study seeks to determine if attitude and experience differences exist with respect to computers within students taking courses in an accounting curriculum and students concentrating in AIS due to gender. Using a modified version of the Adapted Bath County Computer Attitude Scale to measure a sample of students' experience with and attitude towards computers, this study found a gender difference in attitudes early in an accounting curriculum, with a failure of finding a gender difference amongst students in AIS courses. This study also failed to find any gender difference within a sample of students concentrating in AIS. These results contrast with earlier gender studies, necessitating the need for other studies to be done so as to ensure no gender differences exist with regards to computers within the accounting major.*

## Introduction

In September 1998, The American Association of University Women (AAUW) Educational Foundation released *Gender Gaps: Where Schools Still Fail Our Children*. The study was a follow-up to a 1992 report by the AAUW that detailed inequalities in public school education between males and females. Although progress had been made in many areas cited in the earlier study, the new study noted that females tend to have less computer experience and more anxiety towards computers than

males. As societies evolved through the agricultural and industrial ages, gender gaps tended to exist due to physiological differences between males and females. However, having entered the information age, these previous gaps should disappear and therefore increase the possibility of gender equality becoming a reality. However, if the gender gap reported by the AAUW does exist toward computers, females would once again be at a disadvantage in the new technological environment.

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*Readers with comments or questions are encouraged to contact the authors via e-mail.*

The AAUW is not the first to research gender differences in attitudes and usage of

computers (examples include: Sievert, et. al., 1988; Lowe and Krahn, 1989; Orpen and Ferguson, 1991; Igbaria, 1993; Robichaux, 1994; Qureshi and Hoppel, 1995; and Whitley, 1997). Along with gender, other co-factors of interest have included college major, college classification, the number of computer courses taken, work experience with computers, availability of computers at work, school, and home, and frequency of computer use. Most results have shown that males have more experience and a more positive attitude towards computers than females.

The possible gender gap concerning computers is of particular interest in the field of accounting education for three reasons. First, prior research considering the effect of gender on performance in accounting has indicated that males outperform females (Lipe, 1989; Buckless, 1991; Carpenter, et al., 1993). Studying the effect of gender within a particular aspect of an accounting major's education (computers) may isolate an area where a difference may or may not exist.

Second, although one study in particular looked exclusively at accounting students (Orpen and Ferguson, 1991), no study has ever focused on students concentrating in accounting information systems (AIS) as their field of study within accounting. Only recently have colleges and universities begun to offer a concentration in AIS, along with typical areas of audit, tax and controllership. AIS is a fast growing area of concentration and is the area of the future for accounting majors as society has become more oriented to information technology.

Third, as opposed to thirty years ago when females were a relatively small percent of total accounting majors, approximately half of today's accounting majors are female. Because there is a self-selection bias when choosing a major and in choosing an area of concentration within accounting, a gender difference should not exist between accounting majors, in general,

and, more specifically, those concentrating in AIS. Because of these three factors, there is a definite need for studying the attitudes and experience of accounting students by gender and those concentrating in the AIS concentration more closely.

### **Problem Statement and Research Questions**

This study seeks to determine if attitude and experience differences exist with respect to computers within students taking courses in an accounting curriculum and students concentrating in AIS due to gender. If, in fact, the same differences noted by the AAUW do exist by gender of accounting students, failing to address these issues and to attempt to overcome the discrepancies may in fact perpetuate yet another gender gap. Gaps such as these stand to strengthen the "glass ceiling" that already faces many women as they progress up the ranks into top management.

This study is interested in the following exploratory research questions:

- **R1:** Do experience differences exist by gender at different course levels in an accounting curriculum?
- **R2:** Do attitudinal differences exist by gender at different course levels in an accounting curriculum?
- **R3:** Do experience differences exist by gender within the area of concentration of AIS?
- **R4:** Do attitudinal differences exist by gender within the area of concentration of AIS?

This study seeks to add new dimensions of research to the literature and provide results that can be used to help open discussions as to whether accounting education with respect to computers needs to be tailored from its current format to meet all student needs.

### **Methodology**

This study uses a modified version of

the Adapted Bath County Computer Attitude Scale (BCCAS). The BCCAS is a validated 36-item survey that has been used to measure attitudes regarding computers (Qureshi and Hoppel, 1995). Seven questions dealing with computer skills that have been used in another study (Lowe and Krahn, 1989) have also been added to the BCCAS scale so as to increase the number of measures of computer experience. The seven added questions are grouped with other experience questions from the BCCAS and should not effect the validity of the original instrument. Besides demographic questions about gender and major, the instrument includes a question about area of accounting concentration. The survey instrument will therefore collect data about attitudes by gender, major and area of accounting concentration and related computer experience.

The questionnaire was given to business students in four courses at a major southwestern university (student body is approximately 24,000) at the beginning of the spring 1999 semester. The four courses included a: Freshman level introduction to business course, Sophomore level introduction to computers in business course, Junior level AIS course, and Graduate level AIS course.

According to the university's business major curriculum, the freshman level course should be the first course taken within the college of business and before any computer courses are taken by a business major. The sophomore course should be the first computer course a business major takes at the university, based on the required business curriculum of the university. The junior level AIS course is a required course for all accounting majors at the

university. The graduate level AIS course is required of all 150-hour masters degree program accounting majors except those concentrating in tax<sup>1</sup>. Besides tax, other areas of concentration within accounting at the university used for this study include AIS, auditing and controllership.

For a typical accounting major in the 150-hour masters program (excluding those concentrating in tax) at the university used for this study, these three courses are required computer related courses they must take as part of the curriculum. Because they are all three required, the surveying of students in all three courses allows for comparisons of courses at different points in the curriculum. As found in other studies (Harris, 1992; Morris, 1992; Omar, 1991), it is expected that as a student becomes more experienced with computers, the more positive the student's attitude will be towards computers.

**Results**

Surveys were administered to students in the four courses within the first week of the same semester. Students were given the surveys at the beginning of the class period and completed them in approximately ten minutes. Sample sizes obtained are shown in Table 1. Note that in the freshman and sophomore courses, males outnumbered females approximately two to one. However, in the junior and graduate AIS courses, there was almost a fifty-fifty split by gender, which is consistent with the current trend in gender composition of accounting majors.

The first two research questions are concerned with experience and attitudinal differ-

**Table 1 – Sample Size by Course -- Beginning of Semester Data**

Course	Female Sample	Male Sample	Total Sample
Freshman level introduction to business course	89	187	276
Sophomore level introduction to computers in business course	95	188	283
Junior level AIS course	24	24	48
Graduate level AIS course	17	18	35

ences due to gender at different course levels. Because the data was non-continuous over an interval scale, the data appeared to not be normally distributed. Because of this, for conservative purposes the Kruskal-Wallis (non-parametric) test was used when performing the tests of significance. A one-way analysis of variance was run for each course individually. The questions found to be significant at least at the .05 level within each class are summarized in Table 2.

Table 2 provides some interesting results. The junior AIS course had the most questions (two) found to be significant in favor of males having more experience than females. The freshman and graduate courses had only one experience question in favor of males, while the

sophomore class had none. Interestingly, the sophomore course had one experience question in favor of females. No experience questions were found to be significant in more than one course. Three experience questions found to be significant dealt with skills, with males reporting having more spreadsheet and programming skills in the junior and graduate courses, respectively, while females in the sophomore class had more data entry experience. Based on the number of experience questions found to be significant in any course in relation to the total number of experience questions asked (seventeen) and no question being significant across more than one course, the study fails to find a systematic significant experience difference by gender amongst or in all four courses, including the two accounting courses surveyed (research question 1).

**Table 2 – Significant Questions by Each Class -- Beginning of Semester Data <sup>1</sup>**

Question No.	Freshman Course	Sophomore Course	Junior Course	Graduate Course
E8 – Usage of computer at work	.0144*			
E12 – Number of collegiate computer courses			.0115*	
E15 – Data entry skills		.0155+*		
E17 – Spreadsheet skills			.0373*	
E18 – Programming skills				.0001**
A21 – People who like computers are often odd	.0129*	.0010**		
A22 – Working math problems on a computer is fun				.0179*
A35 – It is fun to figure out how computers work	.0086**	.0209*		
A37 – Classroom discussions about computer usage in society are a waste of time	.0355*			.0186+*
A38 – Studying the history of computers is boring		.0494*		.0169*
A41 – Learning about the development of computers is interesting	.0073**			
A43 – Learning about computer hardware and software is fun	.0007**		.0226*	
A45 – Studying the uses and misuses of computers makes one a more responsible citizen		.0352*		
A46 – I wish I had more time to use computers in college	.0151*			

\* = .05 level of significance

\*\* = .01 level of significance

<sup>1</sup> Questions beginning with an ‘E’ are measuring experience, while questions beginning with an ‘A’ are measuring attitude. Unless noted with a ‘+’, all questions noted as significant above indicate that males either had more experience or a more favorable attitude towards computers. Those noted with a ‘+’ indicate that females either had more experience or a more favorable attitude towards computers for that question.

As for attitude, the freshman course had six questions found to be significant in favor of males having a more positive attitude towards computers, the sophomore course had four significant questions, the graduate course had two and the junior course had one. Just as with the experience questions, one attitudinal question was in favor of females. In the graduate AIS course, females had a more favorable attitude about classroom discussions about computer usage in society than males. No attitudinal questions were found to be significant across three or more courses. Of the attitudinal questions found to be significant, there does not appear to be a pattern in the type of question.

Moving from the freshman to the graduate course, there was a decline in the number of significant attitudinal questions by gender in favor of males from six to two out of twenty-seven total attitudinal questions asked. Thus, there appears to be somewhat of an attitudinal difference in the freshman course, a less pronounced difference in the sophomore course and almost no difference in the junior and graduate AIS courses. Although there is a stronger attitudinal difference than experience difference by gender across all four courses, the study fails to find a systematic attitudinal difference by gender across all four courses, with any difference declining from the freshman course to the graduate course (research question 2). This can imply that with exposure to computers, attitudinal differences diminish.

The third and fourth research questions are concerned with experience and attitudinal differences between male and female students concentrating in AIS. The data collected from the junior level AIS course and graduate level AIS course were combined to compare question results by gender and area of concentration. Table 3 shows the sample totals of these two courses by gender and by area of concentration.

Of the 83 students in the two AIS courses, fourteen were concentrating in AIS,

with eight being female and six being male. Using a one-way analysis of variance, only one question was found to be significant at a level of .05, as shown in Table 4.

**Table 3 - Sample Size of Students in Two AIS Courses by Area of Concentration Beginning of Semester Data**

Area of Concentration	Female Sample	Male Sample	Total Sample
AIS	8	6	14
Auditing	13	9	22
Controllership	6	8	14
Tax	6	11	17
Students Taking AIS Course who are not Accounting Majors	8	8	16

**Table 4 - Significant Questions By Gender of All Students Concentrating in AIS Beginning of Semester Data <sup>1</sup>**

Question #	Significance Level of Question #
A33 - Computers are not exciting	.0426+*

\* = .05 level of significance

<sup>1</sup> Questions beginning with an 'E' are measuring experience, while questions beginning with an 'A' are measuring attitude. Unless noted with a '+', all questions noted as significant above indicate that males either had more experience or a more favorable attitude towards computers. Those noted with a '+' indicate that females either had more experience or a more favorable attitude towards computers for that question.

The one question found significant was an attitudinal question in favor of females, which is opposite the overall trend found in other gender studies. This question dealt with how exciting computers are. Based on finding only one question significant, the study fails to find any difference in the experience and attitudes of accounting majors concentrating in AIS based on gender.

**Summary and Discussion**

This study has focused on determining whether experience and attitudinal differences exist by gender towards computers within students taking courses in an accounting curriculum and specifically students concentrating in AIS. For students taking courses in an accounting curriculum, this study failed to find any systematic experience differences. The study did find an attitudinal difference by gender of students in a freshman course, with a lesser difference in the sophomore course and almost no difference in the junior and graduate level AIS courses. This may imply that with exposure to computers, attitudinal differences diminish as one progresses through one's college education.

This study also looked for experience and attitudinal differences with respect to gender within accounting majors concentrating in AIS. Only one question was found to be significant, and it was in favor of females, which is opposite the results of previous studies. Therefore, there does not appear to be any significant experience and attitudinal differences between males and females concentrating in AIS. Since these students were all junior, seniors, and graduate students, this may imply that the education process has been successful in providing both genders with equal experience with computers and that as a result, attitudes towards computers are the same for both genders.

Certain limitations exist in this study. First, sample sizes obtained by area of accounting concentration were small. Second, these results may only apply to the university at which the study took place and may not be generalizable to students at other schools.

**Suggestions for Future Research**

Despite certain limitations, our study's results provide the first formal look for differences due to gender amongst accounting majors concentrating in AIS. Further studies should be

conducted to ensure that gender differences towards computers do not exist in accounting students, specifically those concentrating in AIS. Also, since there are more nontraditional students today than in the past, a study focusing on age differences towards computers would be beneficial. Further, a study showing the change in attitudes of accounting students, and specifically those concentrating in AIS, as measured before and after taking an AIS course could provide insight into the effects of an AIS course on students. 📖

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**Endnotes**

1. The 150-hour program allows accounting majors to receive both an undergraduate and master degree in 150 semester hours. This fulfills the expanded requirements for CPA licensure in most states.

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**Appendix -- Survey Questionnaire**

The purpose of this survey is to collect information about an individual's attitudes towards computers. Please answer all questions by circling the response of your choice or filling in the blank provided. Your answers will be kept confidential by the surveyors and will have no bearing on your grade in this course. Thank you for your assistance in this study.

**Name (PLEASE PRINT)**

\_\_\_\_\_

**Social Security Number**

\_\_\_\_\_

- (1) I am a
  - 2 -- Female
  - 1 -- Male
- (2) I am a
  - 5 -- Graduate Student
  - 4 -- Senior
  - 3 -- Junior
  - 2 -- Sophomore
  - 1 -- Freshman
- (3) I major in
  - 6 -- Accounting
  - 5 -- Finance

- 4 -- MIS
- 3 -- Management
- 2 -- Marketing
- 1 -- Other

1 -- Often

(9) If you have access to a computer at work, how often do you use it?

(4) If majoring in accounting, my concentration area of current interest is

- 4 -- Never
- 3 -- Very Little
- 2 -- Some
- 1 -- Often

- 4 -- Accounting Information Systems
- 3 -- Auditing
- 2 -- Controllership
- 1 -- Tax

0 -- Not applicable, I do not have access to a computer at work

0 -- Not applicable, I am not majoring in accounting

(10) Before entering college, did you ever take a class that met six times or more to learn about computers?

(5) My overall GPA is

- 2 -- Yes
- 1 -- No

- 4 -- 0.00 - 0.99
- 3 -- 1.00 - 1.99
- 2 -- 2.00 - 2.99
- 1 -- 3.00 - 4.00

(11) Approximately how many such classes did you take before entering college?

(6) If you have access to a personal computer at home, how often do you use it?

Please enter number of classes \_\_\_\_\_

- 4 -- Never
- 3 -- Very Little
- 2 -- Some
- 1 -- Often

(12) While in college, have you ever taken a class that met six times or more to learn about computers?

0 -- Not applicable, I do not have access to a computer at home

- 2 -- Yes
- 1 -- No

(7) If you do not have a personal computer, but had the ability to get one, would you acquire one?

(13) How many such classes have you taken in college?

- 2 -- Yes
- 1 -- No

Please enter number of classes \_\_\_\_\_

0 -- Not applicable, I have access to a computer at home

(14) Besides this course, are you enrolled this semester in a computer related course?

(8) How often do you use the college computer labs?

- 2 -- Yes
- 1 -- No

- 4 -- Never
- 3 -- Very Little
- 2 -- Some

Which of the following skills do you have with using a computer?

- (15) Playing games                    2 -- Yes    1 -- No
- (16) Data entry                        2 -- Yes    1 -- No



- (17) Word processing      2 -- Yes    1 -- No      (20) Statistical analysis      2 -- Yes    1 -- No  
 (18) Spreadsheets        2 -- Yes    1 -- No      (21) Database management    2 -- Yes    1 -- No  
 (19) Programming        2 -- Yes    1 -- No

The statements below examine how you feel about computers in college. Please rate each statement, based on your feelings, by circling one of the following numbers:

- Strongly Agree (SA) -- 4**  
**Agree (A) -- 3**  
**Disagree (D) -- 2**  
**Strongly Disagree (SD) -- 1**

Statements	SA	A	D	SD
22) People who like computers are often odd.	4	3	2	1
23) Working math problems on a computer is fun, like solving a puzzle.	4	3	2	1
24) It is easy to get tired of using a computer.	4	3	2	1
25) Studying computers in college would be a good idea.	4	3	2	1
26) People who use computers in their occupations are the only people who need to study about computers.	4	3	2	1
27) Learning about computers is interesting.	4	3	2	1
28) College would be a better place without computers.	4	3	2	1
29) I enjoy using a computer.	4	3	2	1
30) Computers are boring.	4	3	2	1
31) Working on a computer is a good way to spend spare time.	4	3	2	1
32) Using a computer becomes boring after about 30 minutes.	4	3	2	1
33) Learning about computers is something I can do without.	4	3	2	1
34) Computers are not exciting.	4	3	2	1
35) Studying about computers is a waste of time.	4	3	2	1
36) It is fun to figure out how computers work.	4	3	2	1
37) Computers help people think.	4	3	2	1
38) Classroom discussions about the uses of computers in society are a waste of time.	4	3	2	1
39) Studying about the history of computers is boring.	4	3	2	1
40) Learning about the different uses of computers is interesting.	4	3	2	1
41) Reading and talking about how computers might be used in the future is boring.	4	3	2	1
42) Learning about the development of computers is interesting.	4	3	2	1
43) Learning to program a computer is something I can do without.	4	3	2	1

44) Learning about computer hardware and software is fun.	4	3	2	1
45) I enjoy learning about how computers are used in our daily lives.	4	3	2	1
46) Studying about the uses and misuses of computers will help me to be a more responsible citizen.	4	3	2	1
47) I wish I had more time to use computers in college.	4	3	2	1
48) Taking a computer related course can have a positive impact on my attitude towards computers.	4	3	2	1

**Notes**