

The Effects of Age, Access to a Computer, and College Status on Computer Attitudes

Seyed Ebrahim Taghavi ¹
University of Arkansas Pine Bluff
USA

Abstract

This study examined undergraduate college students' (n=174), attitudes toward computers. Attention was given to the relationship between computer attitudes (anxiety, confidence, liking, and usefulness) and age, access to a home computer, and collegiate classification. Age was not found to be significantly related to computer attitudes on any of the four subscales. The findings showed that subjects with access to a home computer had higher positive attitudes toward learning and working with computers. The findings revealed that there was a small difference between students' attitudes and their collegiate classification. Senior students significantly expressed more positive attitudes toward computers than sophomore, and junior students.

Keywords: Anxiety, confidence, liking, usefulness, age.

Introduction

Computers have become a big part of people's lives. They are in homes, cars, banks, shops, workplaces, and schools (Gates, 1998). As one moves toward the future, the interaction with computers seems to become a daily routine. People are becoming aware of the fact that in order to be productive in their society; they would have to be knowledgeable about computers (Levy & Murnane, 2004).

The review of literature indicates that University programs must ensure their graduates are competent in computer use. A study conducted for college students at Cornell University (Monk, D., Davis, P., Peasley, D., Hillman, P., & Yarbrough, P. 1996) concluded that employers have a high expectation of computer literacy in college graduates. Above 80% of the employers rated computer skills as either an "important" or "very important" factor considered in making employment decisions. The employers rated skills in using Internet, databases, e-mail, word processors, and presentation graphics as the most important computer abilities needed by prospective employees.

Study Design

The purpose of this study was to examine attitudes toward computers among undergraduate college students who had completed one semester long course of instruction in computer literacy skills at Mississippi State University. This study examined the four types of attitudes (anxiety, confidence, liking, and usefulness) toward computers as defined by Loyd & Loyd (1985).

In this study attention was given to the following factors: age, access to a home computer, and collegiate classification. Age is often an indicator of general predisposition toward an area of study. Therefore, age was investigated because of the different development and socialization characteristics of various age groups which may play an important role in receptivity to computer experience, age has been found to be a significant factor in the attitude one has toward computer use (Koochang, 1986; Morris, 1994; Taghavi, 2001).

Access to a computer often influences current attitudes toward computers. The review of literature on access to a home computer has shown that more positive attitudes existed among computer users who had a home computer, regardless of gender (Lauman, 2001; Sexton & King, 1999). Therefore, the study examined the influence of having access to a home computer on students' attitudes toward computers.

Little research was found concerning possible collegiate classification effects on attitudes toward computers. A study by Dyck and Smither (1994) concluded that older adults have more interest in learning about computers, greater confidence, and exhibit less computer anxiety than do younger adults. Gunter (1994) and Molla (1987) made comparison of the attitudes of college students enrolled in different introductory courses. They reported that the students' educational level did not significantly influence their attitudes toward computers. Thus the little research existing on the relationship between collegiate classification and computer attitudes is inconclusive.

Methodology

Instrumentation

The instrument used in this study was the Computer Attitude Scale (CAS) developed by Loyd and Loyd in 1985. The CAS consists of 40-items divided into four-10 item subscales: computer anxiety, computer confidence, computer liking, and computer usefulness. The items presented are positively and negatively worded statements such as "computers do not scare me at all" and "working on a computer would make me nervous". The responses for the positively worded items were recorded so that strongly agree = 4, slightly agree = 3, slightly disagree = 2, and strongly disagree = 1. For negative statements the scoring was reversed. This scoring strategy resulted in higher scores on the computer anxiety subscale corresponding to lower anxiety toward computers. Higher scores on the computer confidence, computer liking, and computer usefulness subscales corresponding to higher degree of confidence, liking, and usefulness, respectively. The coefficient alpha reliability for the computer anxiety, computer confidence, computer liking, computer usefulness, and total scores were .90, .89, .89, .82, and .95 respectively.

Subject and Procedure

This was a descriptive study. This study investigated the relationship between the selected variables (age, access to a computer, and collegiate classification) and computer attitudes (anxiety, confidence, liking, and usefulness). Subjects were 174 undergraduate college students (58 men, 116 female) who were enrolled in a computer literacy course in the Technology and Education Department at Mississippi State University.

Research Hypotheses

1. There are statistically significant differences between students' attitudes toward computers and age as measured by the Computer Attitude Scale.
2. There are statistically significant differences between students' attitudes toward computers and access to a home computer as measured by the Computer Attitude Scale.
3. There are statistically significant differences between students' attitudes toward computers and their collegiate classification as measured by the Computer Attitude Scale.

Data analysis

Research hypotheses 1 through 3 were answered by conducting 3 separate multivariate analysis of variances (MANOVA). The dependent variables were computer anxiety, computer confidence, computer liking, and computer usefulness. The independent variables were age, access to a home computer, and collegiate classification. If for each independent variable, the overall MANOVA was significant, a one way univariate analysis of variance was used. A post hoc comparison was conducted for the independent variable collegiate classification because it had more than two levels. The research questions were answered through three parts: (a) report of findings on multivariate analysis of variance; (b) report of findings on univariate analysis of variance; (c) report of findings on Tukey's multiple comparison technique for the variable collegiate classification. The level of significance chosen for this research was .05.

Survey Results

Age:

There was no significant difference on the overall MANOVA. Wilks' Criterion = .946, ($F(3, 171) = 2.412$, and $p = .061$). Results of the univariate analysis of variance for age indicated no significant differences on all computer subscales. The values of F were: ($F(2, 171) = .714$; $p = .399$) for computer anxiety; ($F(2, 171) = .855$; $p = .356$) for computer confidence; ($F(2, 171) = 2.972$; $p = .087$) for computer liking; and ($F(2, 171) = 3.147$; $p = .068$) for computer usefulness. However, older students scored slightly higher on all computer subscales (Table1).

Table 1. Means and Standard Deviations of Age and Computer Subscales

Age	Computer Subscale	N	Mean	SD
22 or less	Anxiety	143	33.89	5.11
23 and older		31	35.48	4.41
22 or less	Confidence	143	31.77	5.01
23 and older		31	34.00	4.77
22 or less	Liking	143	28.20	5.49
23 and older		31	31.77	5.62
22 or less	Usefulness	143	34.92	4.10
23 and older		31	36.54	3.77

Access to a home computer:

There was a significant difference obtained on the overall MANOVA. Wilks' Criterion = .839, ($F(3, 171) = 3.861$, and $p = .000$). Results of the univariate analysis of variance for access to a home computer indicated significant differences on computer anxiety ($F(2, 171) = 8.432$; $p = .001$); computer confidence ($F(2, 171) = 6.205$; $p = .003$); computer liking; ($F(2, 171) = 3.529$; $p = .031$); and computer usefulness ($F(2, 171) = 7.767$; $p = .001$). Students with access to a home computer showed more positive attitudes toward computers (Table2).

Table 2. Means and Standard Deviations of Access to a home computer and Computer Subscales

Access to a home computer	Computer Subscales	N	Mean	SD
Yes	Anxiety	98	34.88	4.81
No		72	33.58	5.13
Yes	Confidence	98	33.04	4.61
No		72	31.45	5.14
Yes	Liking	98	29.47	5.58
No		72	28.30	5.65
Yes	Usefulness	98	35.82	3.87
No		72	34.68	4.14

Collegiate Classification:

There was a significant difference obtained on the overall MANOVA. Wilks' Criterion = .883, ($F(3, 171) = 1.779$, and $p = .041$). Results of univariate analysis of variance for computer anxiety ($F(3, 170) = 2.519$; $p = .060$); computer confidence ($F(3, 170) = 1.699$; $p = .169$), and computer usefulness ($F(3, 170) = 2.510$; $p = .060$) were not significant factors based on collegiate classification. Results of the univariate analysis of variance for collegiate classification indicated a significant difference on computer liking; ($F(3, 170) = 2.563$; $p = .043$). Tukey multiple

comparison post hoc revealed that seniors ($M = 32.16$) had significantly higher mean than sophomores ($M = 27.42$), and juniors ($M = 28.59$) on the computer liking subscale (Table 3).

Table 3. Means and Standard Deviations of Collegiate Classification and Computer Subscales

Collegiate Classification	Computer Subscale	N	Mean	SD
Freshman	Anxiety	42	35.23	4.63
Sophomore		61	32.81	5.44
Junior		47	34.76	4.60
Senior		24	36.62	4.93
Freshman	Confidence	42	32.33	4.21
Sophomore		61	31.14	5.32
Junior		47	32.72	5.29
Senior		24	33.41	4.84
Freshman	Liking	42	30.26	4.22
Sophomore		61	27.42	5.46
Junior		47	28.59	6.78
Senior		24	32.16	4.77
Freshman	Usefulness	42	35.09	3.75
Sophomore		61	34.42	4.46
Junior		47	35.82	3.82
Senior		24	36.20	3.94

Discussion

Based on the results of this study, age did not influence students' attitudes toward the use of computers. Results of this study revealed that students with access to a home computer had lower anxiety, higher confidence, favored more computers, and found computers to be more useful than the students without access to a home computer. Results revealed that students' collegiate classification had very little influence on students' attitudes toward learning and working with computers. There was a difference in liking level; senior students favored working with computers more than sophomore, and junior students. This finding reinforced previous research that investigated computer attitude differences between underclassmen and graduating seniors that reported graduating seniors had higher positive attitudes toward computers. (Walters & Necessary, 1996).

Suggestion for Further Research

Like other empirical studies, this study is not without its limitations: the study can be strengthened by increasing the sample size and including participants in other universities from different geographic areas. With an increased sample size, a more detailed empirical analysis among the college students' can be performed. It might be interesting to include students' self-efficacy as an independent variable to examine the corresponding effect on students' attitudes toward computer.

References

- Dyck, J. L., & Smither, J. A. (1994). Age differences in computer anxiety: The role of computer experience, gender and education. *Journal of Educational Computing Research*, 10(3), 239-248.
- Gates, B. (1998, October 23). Bill Gates describes the future of computing to Indiana university students. *The Chronicle of Higher Education*, XLV (9), A25.
- Gunter, G. A. (1994). *Attitudes of Mississippi State University education and business students toward learning and working with computers*. Unpublished doctoral dissertation, Mississippi State University.
- Koohang, A. A. (1986). Effects of age, gender, college status, and computer experience on attitudes toward library computer systems (LCS). *Library and Information Science Research*, 8, 349-355.
- Lauman, D. J. (2001). Student home computer use: A review of the literature. *Journal of Research on Computing in Education*, 33(2), 196-203.
- Levy, F., & Murnane, R. J. (2004). *The New Division of Labor*. Princeton: Princeton University Press.
- Loyd, B. H., & Loyd, D. E. (1985). The reliability and validity of an instrument for the assessment of computer attitudes. *Educational and Psychological Measurement*, 45, 903.
- Molla, S. T. (1987). *A comparison of college students' attitudes toward computers*. Unpublished Dissertation, The University of Tennessee, Knoxville, Tennessee.
- Monk, D., Davis, P., Peasley, D., Hillman, P., & Yarbrough, P. (1996). *Meeting the needs of CALS students for computing capabilities: Final report of the Ad Hoc committee on College of Agriculture and Life Sciences student computing competencies*. Ithaca, NY: Cornell University, College of Agriculture and Life Sciences.
- Morris, J. M. (1994). Computer training needs of older adults. *Educational Gerontology*, 20(6), 541-548.
- Sexton, D., & King, N. (1999). Measuring and evaluating early childhood prospective practitioners' attitudes toward computers. *Family Relations*, 48(3), 277-286.
- Walters, J. E., & Necessary, J. R. (1996). An attitudinal comparison toward computers between underclassmen and graduating seniors. *Education*, 4, 623-640.
- Taghavi, S. E. (2001). *Evaluation of college students' attitudes toward computers before and after taking a computer literacy course*. Unpublished doctoral dissertation, Mississippi State University.

Walters, J. E., & Necessary, J. R., (1996). An attitudinal comparison toward computers between underclassmen and graduating seniors. *Education, 4*, 623-640.

¹ Dr. Seyed Ebrahim Taghavi is an Assistant Professor at the Department of Mathematical Sciences and Technology, University of Arkansas Pine Bluff. He can be reached at: 1200 North University Drive, Mail Slot 4987, Pine Bluff, AR 71601, USA. Email : taghavi_s@uapb.edu; Phone : +1 (870) 575-8886; +1 (870) 575-4688.

Page left blank