Computer Attitudes of Undergraduate Business Students

Ibrahim M. Al-Jabri, Ph.D
E. MAIL: imjabri@kfupm.edu.sa

Muhammad A. Al-Khaldi, Ph.D
E. MAIL: makhaldi@kfupm.edu.sa

Department of Accounting and Management Information Systems
College of Industrial Management
King Fahd University of Petroleum and Minerals
KFUPM Box # 651
Dhahran 31261, Saudi Arabia

ABSTRACT

A study survey is used to investigate the computer attitudes of 238 business students of a major university in Saudi Arabia. The findings shows that computer experience, degree of access, and computer ownership had significant effect on computer anxiety, computer confidence, computer liking, computer usefulness, and overall computer attitude. Age and class standing do not appear to be related to any of the computer attitude scales. Number of computer-using courses strongly affectes computer confidence, usefulness, and overall attitude, but weakly affectes computer anxiety and liking. Grade Point Average is associated with computer confidence, and overall attitude, but not with computer anxiety, liking, or usefulness

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INTRODUCTION

The proliferation of computers has affected the way to do business, conduct research, and teach students. In the business community, computers help organizations to be more efficient and effective, and competitive in the marketplace through using productivity software, electronic data interchange, integrated office systems, computer-conferencing, and vedio-telecongerencing. In the education community where teaching and doing research are the main professions, computers are part of the educational scene. In a recent survey study, Richards and Pelley [1] have identified the most valuable components of an information systems education in which the PC environment is among them.

Business schools invest a handsome amount of money to install microcomputer labs for faculty and students use. Yet, very few studies invistigate the business students' attitudes toward computers in the context of a developing country, namely Saudi Arabia.

Awareness of user attitudes toward computers is a critical factor in enhancing the acceptance of computer as well as understanding the current behaviour and shaping the future behaviour, such as computer usage. Researchers have suggested that positive attitude (satisfaction) toward computer is an indicator of computer systems success [2,3,4,5]. Stevens [6,7] emphasized two factors for successful implementation of computers in education institutions: (1) teachers' attitude toward computers, and (2) their level of expertise with computers. Positive attitude enhances the knowledge and creativity of computer users, whereas negative attitude may limit the use of computer as a learning and teaching tool and inhibit the information technology assimilation in the classrooms. In his study, Abdul-Gader [5] argued that education and training reduce computer alienation significantly among college students and, hence, improve attitudes toward information technology. Yaverbaum and Nosek [4] found a significant positive shift in students' attitude before and after having completed a course in management information systems, suggesting a connection between satisfaction/attitude and education and training.

This paper presents the results of an exploratory study on computer attitudes and investigates the effect of demographic variables, such as age, computer-using courses, grade point average, class standing, computer ownership, computer accessibility, and computer experience, on computer attitudes among undergraduate business students of a major university in Saudi Arabia.

METHOD

Instrument

The survey data were collected during the Spring Semester of 1994, using a 40-item Computer Attitude Scale (CAS). The CAS was developed by Loyd and Loyd [8] and used by Wilson and Daubek [9]. This instrument has been tested for validity and reliability [8, 10]. The CAS measures four components of computer attitudes, namely anxiety, confidence, liking, and usefulness. Other variables relating to age, class standing, cumulative Grade Point Average (GPA), academic major, number of computer-using courses, computer ownership, computer accessibility, and computer experience were collected through single item questions.

Sample

A total of 300 questionnaires were distributed and 238 usable responses were received, representing a response rate of 79%. The mean age of the respondents is 22.5 years, and the mean Grade Point Average (GPA) is 2.44 on a 4.00 scale. More than 53% of the students in the sample own computers. Thirty-six percent of the students are seniors and approximately one-quater are freshmen. One-half and of the sample has an average degree of access to computers. Ninty percent has a low to an average level of experiance. The average number of computer-using courses taken by students is 3.12 (2.38 standard deviation). Table 1 provides a profile of the sample.

...Insert Table 1 about here...

RESULTS AND DISCUSSION

Descriptive analysis, analysis of variance (ANOVA), and Pearson product-moment correlations are used to examine the computer attitudes along the four attitude components (Anxiety, Confidence, Liking, and Usefulness) and the relationship between each component and age, class standing, number of computer-using courses, GPA, computer ownership, computer accessibility, and computer experience.

Computer Attitudes

In response to the questionnaire statements, respondents are asked to choose one of five responses: strongly agree, agree, neutral, disagree, or strongly disagree. For the purpose of analysis the item responses are coded so that a higher number indicates a higher degree of confidence, liking, perceived usefulness, and lower degree of anxiety. Since each attitude component has 10 items that are evaluated on a 1 to 5 point scale, the range for each will be 10 to 50 points. Therefore, a higher score represents a more favourable attitude than does a lower score. By the same token, the overall scale ranges from 40 to

200. That is, 40 reports the least favourable overall attitude and 200 reports the most favourable overall attitude. Some descriptive statistics for the individual components and the overall attitudes are shown in Table 2.

...Insert Table 2 about here...

Attitude and Age

Previous studies on the relationship between age and attitude produced mixed results. Woodrow [11] found that age was not a significant contributor toward computer attitudes of student teachers. Nickell and Pinto [12] found that age correlates negatively with computer attitudes. However, Marshal and Bannon [13] reported a positive correlation between age and computer attitudes. Table 3 shows no significant correlation between age and any of the individual attitude components and the overall attitudes. This result may be attributed to the limited age spread among the respondents, mean is 22.5 years and standard deviation is 1.9 years. A possible explanation for the positive correlation in one study and negative in another is due to the nature of education and training programs. The computer technology is advancing at a very rapid pace. People should be educated and trained to catch up with this technology to attain positive attitudes as they grow, otherwise, they will be behind the technology and their knowledge gets obsolete as they get older. Hence, they will have negative attitudes.

...Insert Table 3 about here...

Attitude and Computer-Using Courses

It is expected to find a significant positive relationship between the number of computer courses and level of attitude. The results in Table 3 shows that students with more computer courses has high confidence in working with computers, perceives the usefulness of computers, and has more positive overall attitude than those with few computer courses. Anxiety and liking, although exhibits positive correlation, seem to be less impacted by the computer courses. This is really a discouraging finding to see those students with more courses do not appear to manifest significant positive attitude on the anxiety and liking scales. One explanation might be attributed to the free will of the student to take the course. Students who take a required computer course might have different attitudes from their elective course counterparts.

Attitude and Grade Point Average

Since GPA is a plausible measure for student's achievement, we expected that students with a high GPA would have more positive attitude toward computers than those with low GPA. Based on correlation analysis, out expectation is found to be true for confidence and overall computer attitude but not for anxiety, liking, or usefulness. One possible explanation for this unexpected result is that GPA measured the overall performance, not only the computer-related abilities.

Attitude and Class Standing

Correlation analysis indicated that there is no relationship between class standing and attitude. Duncan's multiple range test [14] shows that all students maintain the same the level of anxiety, confidence, liking, usefulness, and Overall attitudes irrespective of their class standing (see Table 4).

...Insert Table 4 about here...

Attitude and Computer Ownership

A strong relationship between computer ownership and sttitudes was documented in the literature [13,15]. Respondents were asked to indicate whether they own a computer or not. In the questionnaire, computer ownership is coded 1 for owns and 2 for doesn't own. The negative correlations (see Table 3) between ownership and attitude scales suggests that those who own computers have higher degree of attitude than those who do not. The correlation is negative because ownership was assigned smaller value for those who own computers. The ANOVA analysis shown in Table 5 confirms the correlation results. That is, students who own computers has less computer anxiety, more confidence in working with computers, more positive attitude concerning liking, and usefulness.

...Insert Table 5 about here...

Attitude and Computer Accessibility

Accessibility is assessed by asking students to report their degree of access to computers. Responses are coded 1 for very low, 2 for low, 3 for average, 4 for high, and 5 for very high. Making computer accessible to users is an important factor that influence computer utilization [16,17]. Accessibility can be enhanced through facilitating conditions such as availability, support, and proximity to the users [18]. All these conditions are met to the sampled subjects. The students in the sample have easy access to a Personal Computer Lab, that is opend daily from 8:00 A.M to 8:00 P.M, located in the same building where they attend classes, and supported with a proficient lab attendant for helping and trouble-shooting. Because of this, it is not surprising to see a strong significant correlation between accessibility and the computer overall attitude and individual components. Lack of free access to computers coupled with distant computer resources from users may lead to negative attitudes (dissatisfaction).

...Insert Table 6 about here...

Table 6 presents the ANOVA results, which reveals that there are significant differences between the degree of access and the attitude components. In general, the higher the degree of access the more favourable the attitude. Interestingly enough, the same pattern surfaced in anxiety, confidence, liking, usefulness, and overall attitude.

Attitude and Computer Experience

Computer experience is assessed by asking students to report their level of experience. Responses are coded 1 for no experience, 2 for low experience, 3 for moderate experience, and 4 for high experience. The correlation coefficients, in Table 3, show positive and significant relationship between experience and attitude components as well as overall attitude. This finding suggests that more experienced users are likely to be less anxious, more confident in their ability to use computers, have greater degree of liking computers, and have greater perception of the usefulness of computers.

...Insert Table 7 about here...

Analysis of variance, in Table 7, is also used to test whether there are significant differences in the computer attitude and level of experience. Quite interesting observation is that higher level of experience tend to promote higher level of attitude but not for usefulness. All respondents have the same perception of the usefulness of computers, regardless of their experience level. Other attitude components show significant differences with levels of experience. Since paired comparison of attitude means between various levels of experience is not invistigated, we would not rule out that the difference between some means is not significant.

CONCLUSION

The results of this study demonstrates that computer attitudes of this sample of students are skewed toward the positive side of the scale and are substantially more positive in regard to computer usefulness than they are in regard to computer anxiety, confidence, and liking. With regard to the association bewteen computer attitudes and background variables, the study shows that experience, accessibility of computer resources, and computer ownership tend to promote positive feelings toward computers whereas age and class standing have shown to be ineffective in developing favorable computer attitudes. Students with more computer courses and higher GPA are found to have more confidence and overall attitude but no reduction in computer anxiety or improvement in terms of computer liking.

It is interesting to notice the difference between the effects of number of computer-using courses and experience on attitudes. Although the number of computer-using courses may enhance student's experience, the association between attitudes and experience is higher than that of the number of computer-using courses. This reveals the importance of practical experience over theoritical knowledge. So, it is an incumbent on educators to stress on hands-on use of computers in their courses.

In conclusion, attitude may be a hinderance or a motivational factor to learning about and using computer. Negative attitude may promote a resistance to the acceptance and utilization of computer technology. On the other hand, positive attitude may enhance students' learning in classrooms and society computer awareness. It is of paramount importance to promote and maintain positive attitudes toward computers, especially among future generations (i.e., students).

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Table 1: Profile of Respondents

Variable		Frequency	Percent
Age:	Under 21	51	21.4
	21-22	74	31.1
	23-24	81	34.1
	Over 24	32	13.4
Class:	Freshman	57	24.4
	Sophomore	61	26.1
	Junior	31	13.2
	Senior	85	36.3
Ownership:	Own	125	53.6
	Don't Own	108	46.4
Access:	Very Low	16	6.9
	Low	27	11.6
	Average	119	51.3
	High	56	24.2
	Very High	14	6.0
Experience:	None	13	5.6
	Low	98	42.0
	Moderate	113	48.5
	High	9	3.9

Table 2: Descriptive Statistics

Scale	No. of Items	Mean	S.D.	Min.	Max.	Reliability
Anxiety	10	34.48	6.44	18	50	0.78
Confidence	10	35.45	6.62	18	50	0.84
Liking	10	34.13	6.12	16	50	0.77
Usefulness	10	38.54	5.46	20	50	0.71
Overall	40	142.60	20.99	40	199	0.92

Table 3: Pearson Product-Moment Correlation Coefficients

Variable	Anxiety	Confidence	Liking	Usefulness	Overall
Age	-.13	-.13	-.04	-.04	-.08
Class Standing	-.06	-.05	-.02	-.09	-.01
No. of Courses	.11	.13[a]	.13	.13[a]	.15[a]
GPA	.09	.13[a]	.13	.13	.14[a]
Ownership	-.28[c]	-.34[c]	-.36[c]	-.17[b]	-.34[c]
Accessibility	.45[c]	.47[c]	.38[c]	.21[c]	.45[c]
Experience	.32[c]	.41[c]	.32[c]	.15[a]	.36[c]

[a]p<=.05 [b]p<=.01 [c]p<=.001

Table 4: Computer attitude means by class standing

	Class Standing				
Scale	Freshman	Sophomore	Junior	Senior	Pr > F
Anxiety	34.7	34.8	34.7	33.9	.7982
Confidence	36.2	35.0	35.7	35.1	.7592
Liking	35.3	32.7	34.7	34.2	.1387
Usefulness	38.3	37.7	38.3	39.3	.3469
Overall	144.4	140.3	143.4	142.5	.7621

Table 5. Computer attitude means by computer ownership

	Ownership		
Scale	Own	Don't Own	Pr > F
Anxiety	36.17	32.48	.0001
Confidence	37.52	32.98	.0001
Liking	36.25	31.75	.0001
Usefulness	39.40	37.56	.0103
Overall	149.34	134.77	.0001

Table 6: Computer attitude means by degree of access

	Degree of Access					
Scale	Very Low	Low	Average	High	Very High	Pr > F
Anxiety	25.9	30.4	34.8	37.1	38.2	.0001
Confidence	27.6	31.9	35.0	39.1	39.9	.0001
Liking	27.8	31.2	34.1	36.8	36.8	.0001
Usefulness	38.2	36.2	38.0	40.0	41.9	.0036
Overall	119.6	129.7	141.9	153.0	156.8	.0001

Table 7: Computer attitude means by level of experience

	Level of Experience				
Scale	None	Low	Moderate	High	Pr > F
Anxiety	28.3	33.2	35.9	38.4	.0001
Confidence	28.5	33.4	37.4	41.1	.0001
Liking	29.9	32.4	36.0	36.3	.0001
Usefulness	36.6	37.8	39.3	39.3	.1252
Overall	123.4	136.8	148.6	155.2	.0001