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## Factors Affecting the Attitudes Towards Computers: A Survey at Higher Secondary Level in Punjab, Pakistan

Shamsa Aziz, Ph.D.

Hamid Hassan, Ph.D.

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### Abstract

This study is a part of Ph.D. research in which researcher attempted to explore the factors that effect student's attitude towards computers. The study was delimited to the province of Punjab, Pakistan. The estimated population was more than 30,000. Total number of the students included in the study was 1068. Computer Attitude Scale" (CAS) developed by Loyd and Gressard was used for measuring the students' attitude towards computers. Affect of students' gender, physical facilities for computer science available to them at colleges and the qualification of the teachers teaching them was analyzed by applying t test and one way ANOVA. As the research findings indicated the positive affect of sufficient physical facilities and computer graduate teachers on students' attitude towards computers so it is recommended that all the required and internationally recommended physical facilities along well qualified and properly certified teachers may be provided in all colleges and schools where computer science/ studies are being offered to the students.

### Key Words

Attitude Towards Computers, Information Technology, Gender, Physical Facilities, Teachers' Qualification

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## Introduction

Twenty-first century is a century of information technology. Information and technical revolution has a profound impact on nearly all walks of life. The core one and the most promising tool of this information age is the computer. With an ever growing use of computers in every day life, the need for effective instructions about computer is being felt. Computer instruction is being emphasized at higher secondary level and it is expanding rapidly at this level. As Winer & Mothe (1987) are of the view that student leaving school will meet with computer in every phase of their lives therefore, they must be prepared to deal with them. The range and quality of experience gained in school certainly influence attitudes toward computers and positive attitude towards computer technology will be an asset in ever more competitive employment market. Reece & Gable (1982) noted that introducing computers into schools without developing students' positive attitudes towards computers would be a waste of time and money. On the other hand, having negative attitudes toward computers may lead students to resist learning about computers and affect acceptance of technology use

Attitude towards computers covers the students' feelings, beliefs and perceptions towards general computer use, computer assisted instruction, programming and technical concepts, social issues surrounding computer use and computer history. The modern psychology has emphasized the role of user's attitude and anxiety; these two are the factors that affect the knowledge of computers among individuals. Fishbein & Ajzen (1975) introduced a theory, which proposed that, computer attitude affect user's behavioral intentions (future desires) that in turn affect actual computer usage (experience).

Attitude can be thought as the father of action and is formed in response to certain personal or interpersonal factors; the social environment also determines attitudes. Same is true regarding the students' attitude towards computers Researchers like David (1995), Harrison, Dominic & Barbara (1999), Shashani (1995), Loyd & Loyd (1985), Loyd & Gressard (1984) and many others have identified several factors which can affect attitude towards computers; these variables include gender, grade, age, personal computers, physical facilities at college.. A large number of studies supported the idea that home access to computers and prior experience has a big influence on students' attitudes. (Windmer & Parker 1985; Koohang, 1986; Ogletree & Williams, 1990; Nichols 1992, Abler & Sedlacek, 2002 Anderson, 2002,)

A course of computer science was offered at secondary and higher secondary (intermediate) level in the scheme of studies of different Boards of Intermediate and Secondary Education in the Punjab (Pakistan) in 1990. Keeping in view the previous

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research findings, researchers decided to undertake a research to investigate the factors that are affecting the attitude towards computers in Pakistani context. So a study was planned to explore the effect of different variables on students' attitude towards computers.

## **Population**

The study was delimited only to students of higher secondary classes in the province of Punjab who were studying computer as a subject. The estimated population was more than 30,000.

## **Sample**

Total number of the students included in the study was 1068.

## **Instrument**

“Computer Attitude Scale” (CAS) developed by Loyd and Gressard in 1984 was used. CAS has 40 items, which present statements of attitude towards computers and the use of computers. Original four point Likert type scale was changed into a five-point scale by introducing a mid point as a neutral. Three experts validated the instrument while it was pilot tested on 43 students.

For getting information about the available physical facilities for computer science and teachers' qualification a demographic Performa was developed by the researcher. The list of physical facilities was given in the Performa. This Performa was to be filled out by the Heads of Institutions.

## **Data Collection**

The data collection was done through the representatives of the researchers and researcher herself. A group of six representatives were briefed about the nature of the study and a comprehensive orientation was done in a formal session. They were also provided with some written instructions. Students were briefed about the needs of the research; they were assured that their performance would not affect their regular evaluation. The scale was administered in actual classroom setting with the help of college administration.

## **Analysis of the Data**

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Data were analyzed using SPSS. Three hypothesis were formulated for studying the affect of gender wise difference, physical facilities and teacher qualification regarding attitude towards computers which were tested by applying t test and one way ANOVA

**. H<sub>01</sub>. There is no gender wise significant difference in students' attitude towards computers.**

*Table 1: Gender wise Difference in Students' Attitude towards Computers*

Gender	N	Mean	t	df	Significance
Male	643	132.73	2.295	973.549	.022
Female	425	134.19			

Table given above indicates that t value (2.295) is significant at .05 level of significance so the null hypothesis is rejected and it is concluded that there is a significant difference between male and female students' attitude towards computers. Female students have higher mean score (134.19) than the male students (132.73) on Computer Attitude Scale.

**H<sub>02</sub> There is no significant difference in students' attitude towards computers between those who have sufficient physical facilities and who have insufficient physical facilities for computer science at colleges.**

*Table 2: Difference in students' Attitude towards Computers on the basis of t Physical Facilities*

Physical facilities at colleges	N	Mean	t	df	Significance
Sufficient	251	135.01	3.357	517.613	.001
Insufficient	817	132.79			

t value (3.357) in the above table is significant at .05 level of significance, so the null hypothesis is rejected. It is concluded that there is a significant difference regarding

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attitude towards computers between the students who have sufficient physical facilities at college and those who have insufficient physical facilities at college. The students who have sufficient physical facilities at college have higher mean score (135.01) than the students who have insufficient physical facilities at colleges (132.79) on Computer Attitude Scale.

**H<sub>03</sub> There is no significant difference in students' attitude towards computers taught by teachers with different qualifications**

Table 10: Difference in Students' Attitude towards Computers taught by Teachers with different Qualifications

Teachers' qualification	N	df	F	Significance
Science graduate + Diploma in Computer science	82			
Computer graduate	732	2	14.571	.000
Any other qualification	254			

F value (14.571) is significant at .05 level of significance, so the null hypothesis is rejected and it is concluded that there is a significant difference regarding attitude towards computers among students taught by teachers with different qualifications i.e. computer graduates, science graduates with diploma in computer science and any other qualification. As the results are significant, it was decided to run LSD Post Hoc Test of Multiple Comparison. However only significant mean differences are presented here which contribute the most in making the results significant.

Table 11: Summary of Multiple Comparisons regarding Attitude towards Computers among Students taught by Teachers with different Qualifications

Teachers' qualification	Mean difference	Significance
Science graduate + Diploma in Computer science VS Computer graduate	6.14	.000
Science graduate + Diploma in Computer science VS Any other qualification	4.26	.001

As shown in the table the overall results for the post hoc test indicate that: the students' attitude towards computers is significantly affected by the teachers who are Science graduates + diploma in Computer studies and Computer graduates

### **Findings**

- 1 There is a significant gender wise difference in students' attitude towards computers.
- 2 Female students have higher mean score on Computer Attitude Scale than the male students.
- 3 There is a significant difference regarding attitude towards computers between the students who have sufficient physical facilities at colleges and those who have insufficient physical facilities at colleges
- 4 The mean score on Computer Attitude Scale was higher for the students who have sufficient physical facilities at colleges than those who have insufficient physical facilities at colleges.
- 5 There is a significant difference regarding attitude towards computers among students taught by teachers with different qualifications
- 6 The students' attitude towards computers is significantly affected by the teachers who are Science graduates + diploma in Computer studies or Computer graduates

### **Conclusions and Discussion**

Gender, physical facilities and teachers 'qualification have a significant effect on students' attitude towards computers. In this study female students showed better results than males. Literature showed a controversial state in this regard. Different research studies have shown different findings. Moe (1984), Linn (1985), Shulkhu (1989), Al-Badar (1993), Francis (1994) and Morgan (2000) explored that gender had no effect on attitude towards computers. Levin & Gordon (1989) Igbaria & Chakrabati (1990) Singh (1992) Barrier & Margonio (1993) Shahani (1994) Shahani (1995) Fletcher Flinn & Suddendorf (1996) and Comber (1997) investigated that male students were better than females. While the study of Jegedege & Aiewole (1990) showed that females were better than males. Anderson (2002) perceived that males show more favorable results towards computers because computers may be a career asset for them. All these studies have been conducted in western context where females have a) equal opportunities b) more freedom to decide about their carrier paths and c) more choices available in the educational system. When we look into Pakistani context we may say that now day's females are dominating in many other fields including computers, which were used to be considered as male dominated in the past, as has been shown by present study.

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Physical facilities at colleges also affect the attitude towards the computers. The sufficient physical facilities resulted in better attitude. The reasons are that the opportunities to have sufficient hands on experience with computers and other related things resulted in more positive attitude.

Teachers' qualification also affected in a way that computer graduate teachers can teach in a better and friendly way thus reducing phobia and fear which results in positive attitude.

### **Recommendations**

On the basis of the findings of the study that

- 1 Only the computer graduates should be appointed as the teachers for teaching computer sciences
- 2 Continuous monitoring must be done to make sure that certified teachers are teaching at colleges.
- 3 Since the findings of the study showed that females are better than male, more research studies are needed to be conducted at various levels and with varied samples to investigate the reasons.
- 4 Colleges and schools should be provided fully equipped computer laboratories according to UNESCO's standards for the development of positive attitude towards computer in the students

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**International Islamic University Islamabad, Pakistan**  
[phd\\_edu@yahoo.com](mailto:phd_edu@yahoo.com)

**Hamid Hassan, Ph.D.**  
**Federal College of Education Islamabad, Pakistan**  
[education101@hotmail.com](mailto:education101@hotmail.com)

Language in India [www.languageinindia.com](http://www.languageinindia.com)

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