



## A STUDY OF COMPUTER PHOBIA AMONG TEENAGE STUDENTS

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### **Abstract:**

Computers have become an integral part of students' life and its importance in the field of education cannot be ignored. Usage of computers is seen as an essential part of curriculum providing students with opportunities to access large amounts of information and utilize various web-based applications and content related to their studies. With the invention of the Internet, computers have become a global system of connections between millions of learners that allows dissemination of information easily. With the generation that is completely dependent on computers the concept of computer anxiety among students has also become a topic of concern. Students who have used computers are less likely to have computer anxiety as compared to those who have never had an opportunity to do so because of which they avoid, or minimize its usage. Communication gap between its usage instructions can be one of the reasons for increasing computer anxiety. Overuse of computers has also led to a new form of addiction among adolescents. Computer anxiety involves an individual's feelings of unease, apprehension and fear about computer use. The present study emphasizes the attitude of adolescents towards computer anxiety. The results reflected that gender had no effect on computer anxiety. Those students belonging to Urdu medium schools had a higher level of computer anxiety compared to those belonging to English medium schools.

**Keywords:** Computer Anxiety, adolescence, internet, medium of instruction, gender

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### **Introduction**

In 2019, the onset of a global pandemic made digital working an essential and mandatory way of working for a large field of knowledge workers in what has been referred to as the world's largest work-from-home experiment (Banjo et al, 2020). It's hard to repudiate that computer have occupied a prominent place in modern society in such a way that computer technology exists everywhere, even in the educational sector globally. Almost all aspects of human lives are affected by computers to a significant degree and it is difficult to imagine a task or a job that can be completed without relying on computers. The use of computer technology has gradually increased day by day, making every individual computer-dependent and of course, the field of education is no exception. The use of computers in education has been steadily expanding and this has reorganised the traditional educational approach



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leading to more sustainable and tech savvy pedagogies.

Computers from a very long period of time were used as a powerful technology for managing information and enhancing productivity, but today are an efficient tool for education and training. In the digital Age, people are coping with the growing demand of being computer literate. As time has progressed, computers have made their place from primary to higher education making it an important tool in the teaching learning process (Bhalla, 2013). Educators are striving to integrate computer-based advancements into teaching practices to make learning more interesting for students. The ongoing use of educational software and programs that helps in personalized online instruction for students is a most demanding application of computers. A huge amount of money is spent by schools and businesses on computer-based education and training each year.

Heinssen, Glass and. Knight, 2002 have stated that despite the growing role of computers in society, some individuals may actually avoid and resist learning about computers due to their anxiety. It is believed that if they possess less computer anxiety, then there may be a chance for them to make use of computers easily. Computer anxiety may be defined as a feeling of paranoia when using or just having a thought of using a computer (Leso and Peck, 1992). The definition of computer anxiety has changed through the years. It is defined differently by various researchers. Jay's definition of computer anxiety (cited in Brosnan 1998b, 12) as (a) a resistance to talking about computers or even thinking about computers; (b) fear of computers; (c) aggressive thoughts about computers. These three components touch on (a) behaviour, (b) emotion, and (c) attitude. Computer anxiety deals with fear and nervousness felt by the people while using the computer systems. Technophobia or computer anxiety, which isn't a formally identified mental disease, is the unreasonable mental state in which the users develop an anxiety of learning a new method or a new device. It puts a negative impact on professional progress and innovation, affecting health, and affects one's ability to do work effectively. Computer anxiety is an emotional response to computers characterized by the fear that is also seen in many adults. Fear and anxiety towards computers tend to support negative learner attitudes and repel adult interest (Wlodkowski, 1993, p. 83). Interaction between humans and computers is complex. Hakkinen (1994) suggests that this interaction may encourage a variety of emotional responses, including anxiety. From the research point of view, it has been observed that whenever people interact with the computer for the first time, they feel anxious. For minimizing computer anxiety in the students, RESEARCH on computer anxiety is being increased.

The maximum number of people use computers in their day-to-day life, but still a higher number of people face difficulties with computers, and so do students. It has been indicated through various studies that individuals most of the time showcase a set of emotional reactions that are complex in instances while using computer technology. One of the major reasons for this could be anxiety while using them or while dealing with them (Beckers and Schmidt, 2001). Computer anxiety occurs when an individual comes across computer technology fearing to use them appropriately (North and Noyes, 2002). Not all individuals have anxiety, most of them are positively oriented towards the usage of computers, while others showcase serious fear or block and have been labelled 'technophobic'. While considering the concept of computer anxiety in the field of education, it may be considered as a serious barrier for students to learn effectively. Computer anxiety is common among school and college going students (Stiller and Koster, 2016). Some students are excited about handling computers while others may be



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anxious, fearful or resistant (Arani, 2001; Doyle, Stamouli, and Huggard, 2005).

Computer anxiety is not novel but has been observed in many computer users since the time when technology was introduced into schools, workplaces and homes almost a decade ago. Many studies have evaluated that computer anxiety is related to various factors like computer experience, age, gender, socio economic factors or even personality traits. Majority of the students are still not availing full advantage of ICT. This is due to computer anxiety in the students and unavailability of computers for each student in the schools. Students experience less pressure if they can handle anxiety. If the students remain anxious, they may not do well in their academic studies. Also, anxiety could complicate their physical and psychological states and persist even after school and it may negatively affect their capacity to work in the future (Basudan, Binanzan and Alhassan, 2017)

However, whether they feel comfortable or not regarding the role and use of computers in their lives, all students must be familiar with using computers because this technology dominates all avenues of our social as well as personal life. Schooling has switched on to both online and offline mode both since pandemic, but for students who feel intimidated by technology, learning both course contents and the technology in unison can be a daunting task.

Some level of anxiety is normal. In fact, a little anxiety is a normal way of coping with life's routine challenges. But for some people anxiety is so prominent that it interferes with concentration, work, relationships, or physical well-being. Everyone feels anxious sometimes and low levels of anxiety actually can stimulate learning and productive work. Coping skills are needed to effectively deal with computer anxiety (Sieber, Oneil and Tobias, 1977). Students should try to adapt to the different challenges they face in their academic life. More importantly the school, university and college should consider the importance of providing students with academic environment that encourage students' learning and persistence at the institution and protect them from an unwanted anxiety feeling which probably may change students' behaviours and attitudes towards computers (Kalinin, Hocaoglu and Mohamed, 2020). So the current effort is to study the level of computer anxiety among school and college going students in order to find an appropriate solution to deal with it as the fact cannot be denied that surviving without computers is impossible.

##### **Review of Related Literature**

Thillainatarajan and Lux, (2011) state in their article that when anxious, a person may feel the sensations of a racing heart, blushing, chest pain, trouble breathing, shaking, difficulty swallowing, nausea, sweating, nervousness, panicking thoughts and feeling lightheaded.

Gupta, 2001 has found that while technology integration is attractive to certain sets of students, others struggle with this medium. In today's world where everyone is overwhelmed with technology and feeling it as the new normal, the concept of technophobia has also emerged which indicates fear of computers and related technologies, sounds which are almost irrelevant and unheard of. and also, it engulfs many people. As per Scientific research (Vician and Davis, 2002, p.51) indicates that individuals with such adverse psychological reactions to computing technologies will generally under-utilize computing-intensive environments or avoid interacting with computing technologies. Studies in the past years have revealed that for some individuals, the application of technology and especially, computers, could create strong negative impact, not only at the time of interaction but even before,



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which would result in the individuals developing a negative idea of such technology or engage in behaviours that minimize their chances for continued use (Saade and Kira, 2009). This negative impact will create negative thinking which affects the capacity of the person to interact with technology, learn, develop social relationships, and the overall comfort of the individual (Sultan and Kanwal, 2017).

Research advocates that demographic agent such as the age of a person, his level of education and disability may also influence individual attitudes towards computers and use of the internet. (Cazan, et al., 2016; Steelman and Tislar, 2019). Rajasekar. S, (2002) conducted a study to understand the attitude of university students towards computers”. This study shows that gender subjects and locals of the university students do not influence their attitude toward computers and also a large number of university students have a relatively favourable attitude towards computers. Kannan, Muthumanickam and. Chandrasekaran (April, 2012) in their study states that Computer Anxiety of the Higher Secondary school students is below the average level. Also, their study recommends that Computer Anxiety is independent on the factors like one’s school kind, school system and tuition undergoing and dependent on factors like gender, location of school, study habit of students, computer course undergone by the students and the way they browse on computers. Research has stated that females have a higher level of computer anxiety in comparison with males. (Chua et al., 1999; Sultan and Kanwal, 2017).

Students with mental illness, technological issues such as the use of computers and online learning are major reasons behind anxiety and stress (Saade et al., 2017). Rosen and Weil (1995) studied the availability of computers, experience of school teachers while using computers and computer anxiety in California. Their study reflected that despite the availability of computers at all schools, they were not being utilized by many teachers. Teachers who were less adapted to use of computers had a higher level of computer anxiety. Their study revealed that computer anxiety was correlated with computer experience and/or exposure. Study conducted by Bozionelos (2004) reflected that Individuals’ social-economic status had a positive relationship with computer experience. Computer anxiety was low among People who were socially-economically privileged. This can be explained by the fact that individuals who have been raised within higher social-economic status families are more likely to have availability of a computer or computer access in order to attend schools with better computer equipment, facilities and to have teachers with better computer expertise (Bozionelos, 2004, p. 727). Some researchers examined the relationship of personality traits to computer anxiety. Winer and Bellando (1989) measured college students’ computer anxiety using the Holland Model which categorized vocational personality into six types. The results suggested that the realistic, investigative, enterprising, and conventional types had lower computer anxiety as compared to artistic and social types.

Computer anxiety also results in a number of common fears. People using computer feels that they will destroy the computer software or hardware as they don’t know how to use the device well. They feel that they look stupid. As computers work like humans but are much faster than humans, people feel that the machine is more knowledgeable than what they are. They feel too small in front of technology and assume that if they are already so behind, how will they ever catch up with computers (Raub,1981). Some researchers examined the relationship of math anxiety to computer anxiety. It was found that students’ math ability affected math anxiety and computer anxiety. Students who had high math ability had low math anxiety and computer anxiety (Lindbeck and Dambrot,



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1986). Some researchers are of the belief that computer anxiety has nothing to do with math ability (Fletcher and Deeds, 1994). Students' math anxiety was not related to computer anxiety either (Todman and Lawrenson, 1992). Chinese high school students were found to be more positive towards computers when watched by Collis and Williams (1987) in comparison to Canadian students. Same results were seen when Allwood and Wang (1990) compared Swedish and Chinese college students. Chinese students were more optimistic towards the use of computer technology. American and Chinese college students studied by Marcoulides and Wang (1990) revealed that both types of students showed similar types of anxiety towards computer. A factual study was conducted to investigate predictors of computer anxiety among undergraduate college business students. The effects of academic major, computer-related experience, gender, and ACT scores on computer anxiety were looked into. The results indicate significant differences in computer anxiety levels among business students with different majors and with different amounts of computer-related experience. A strong correlation was found in Business students ACT scores. A significant difference between male and female business students was not found. The implications of these findings are discussed (Havelka, Beasley and Broome, 2004). The factor of Age and its relationship with computer anxiety have been the core focus of many research studies. "The growth of computers and computer usages in this country is one potential area of fear for older adults" (Baack, Brown, and Brown, 1991, p. 422). Some researchers have found that older adults have a less interest toward computers than do younger adults (Baack et al., 1991). A contradictory result was seen with elderly people who showed more interest and greater confidence in learning computers compared with younger adults. (Klein, Knupfer, and Crooks, 1993; Dyck and Smither, 1994).

A difference is evident between research on age and its relationship to computer anxiety. However, researchers have proven the fact that prior positive use of computers, exposure to use of technology and experience with using computers contribute to reducing computer anxiety (Ayersman and Reed, 1995; Dyck and Smither, 1994; Hakkinen, 1994; Maurer and Simonson, 1993). Increased exposure to the subject that is related to computer usage also minimizes the resistance that exists among students and results in a positive outlook thus reducing the anxiety level (Wlodkowski, 1993). The factors because of which computer anxiety develops are varied and varies from one individual to another individual. In general, according to Rogers and Eichholz (1964), this anxiety about computer technology may be related to variables such as inadequate information about using computers, lack of experiences, procrastination, and fear of the unknown. Most people have not been prepared for such a rapid penetration of technology and their understanding and knowledge of computers have not kept pace with the technology. This inability to assimilate the technology has resulted in computer anxiety (Raub, 1983).

Various studies have been done on computer anxiety and factors that contribute in enhancing the anxiety abroad, very few studies have been conducted in India on this concern. Little amount of literature is available on levels of computer anxiety among school and junior college students. The present study focuses on Indian school and college going students and level of anxiety considering the medium of instruction of the educational institute.

##### **Statement of the Problem**

A Study of Level of Computer Anxiety among Secondary School Students and Junior College Students.

##### **Scope and Delimitations of the Study**



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In the present study the data was collected from Secondary School and Junior college Students. This data does not include students from pre-primary and primary section. This data does not include senior college students also. The data was collected from SSC and HSC boards. Other educational boards like IGCSE, CBSE, ICSE and IB were not taken into consideration. This data does not include teachers, principal's perspectives. The present study only focused on English and Urdu medium. Other vernacular medium schools like Marathi, Hindi, Gujrati, etc were not considered. Gender and medium of instruction of the institute was considered, other factors affecting computerphobia like availability of resources, expertise, prior knowledge, training, socio-economic status, parenting style, etc were not taken into account.

#### Methodology and Sample of the Present Study

A descriptive survey method was used for the present study. The sample was collected using convenience sampling. The Computer Anxiety Rating Scale (CARS) designed and validated by Heinssen, Glass and Knight (1987) was used to assess an individual's level of computer anxiety for the present study. The rating scale consisted of 19 item self-report inventory with a five-point Likert type scale (1=strongly disagree; 3=undecided; 5=strongly agree). Total score ranged from 19 as the minimum score, indicating a low level of computer anxiety, to 95 as the maximum score, indicating a high degree of computer anxiety. Data was collected through google forms due to the pandemic of COVID-19 and the respondent consisted of secondary school students and junior college students from English and Urdu medium institutes. Table 1.1 represents the sample for the study.

**Table 1.1: Sample Size for Present Study**

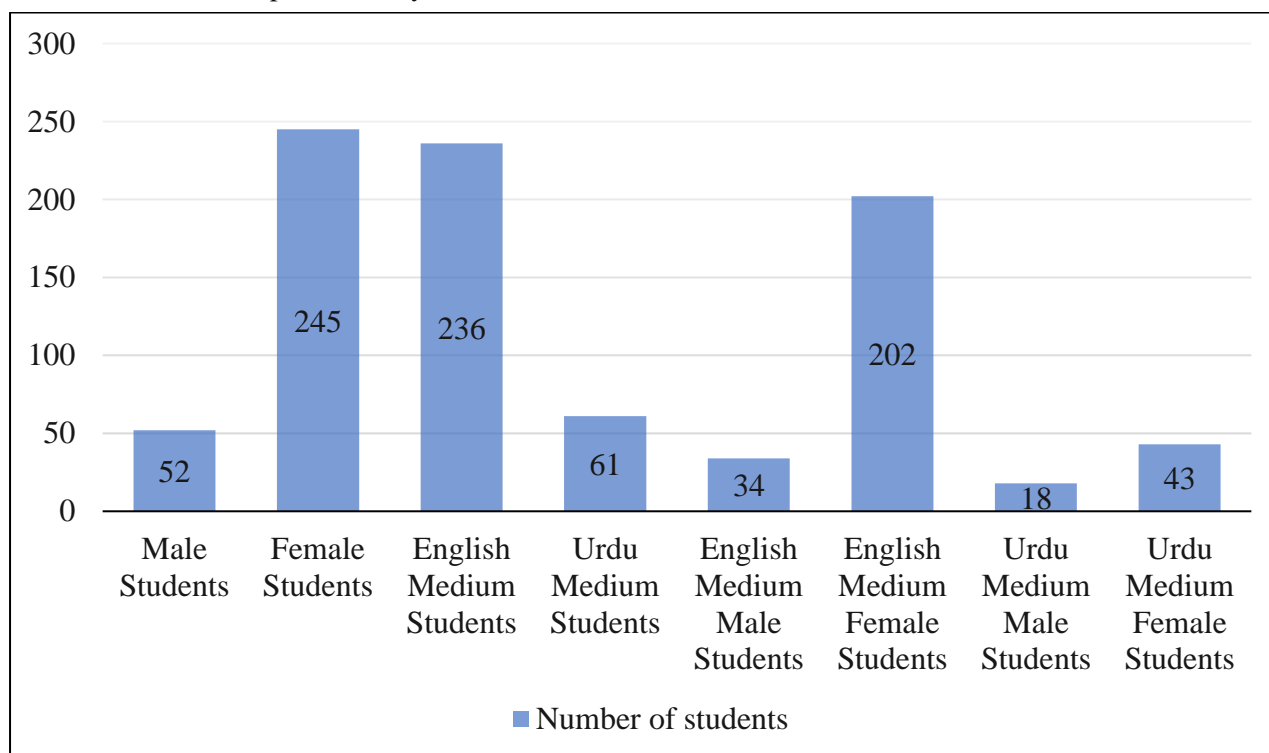
	N	Percentage
Male Students	52	17.51
Female Students	245	82.49
English Medium Students	236	79.46
Urdu Medium Students	61	18.86
English Medium Male Students	34	11.44
English Medium Female Students	202	68.01
Urdu Medium Male Students	18	6.06
Urdu Medium Female Students	43	14.48

The total Sample consisted of 297 students. Out of the total sample 52 were male students and 245 were female students that is 17.51% were male and 82.49% were females. Out of 297 students 79% students were from English



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medium and 19% students were from Urdu medium institutes. There were 236 students from English medium institutes i.e. 79.46% of the total sample out of which 86% students were males and 14 % students were females. There were 61 students from Urdu medium institutes i.e. 18.86% of the total sample out of which 30% students were males and 70% students were females. Figure 1.1. represents a bar diagram depicting the sample size of students selected for the present study.



**Figure 1.1: Bar diagram depicting number of students in each category**

#### Hypothesis Testing and Interpretation

1. There is no significant difference in the level of computer anxiety among teenagers.
2. There is no significant difference in the level of computer anxiety among Male teenagers.
3. There is no significant difference in the level of computer anxiety among Female teenagers.
4. There is no significant difference in the level of computer anxiety among teenagers belonging to English Medium Institutes.
5. There is no significant difference in the level of computer anxiety among teenagers belonging to Urdu Medium Institutes.
6. There is no significant difference in the level of computer anxiety among teenagers with respect to gender.
7. There is no significant difference in the level of computer anxiety among teenagers with respect to the medium of instruction.
8. There is no significant difference in the level of computer anxiety among male and female teenagers from English and Urdu medium Institutes.



Table 1.2: Relevant Descriptive Statistics

	N	Mean	Median	Mode	S. D	Skewness	Kurtosis
<b>Total students</b>	297	62.98	63	62	7.67	-1.36	6.33
<b>Male Students</b>	52	59.46	60	66	11.53	-1.52	3.72
<b>Female Students</b>	245	63.73	64	62	6.35	-0.22	1.42
<b>English Medium Students</b>	236	63.01	63	65	7.36	-1.22	5.81
<b>Urdu Medium Students</b>	61	62.87	63	62	8.80	-1.66	7.27

Hypothesis 1, 2, 3, 4 and 5 were tested using descriptive analysis

**Hypothesis 1:** The mean, median, mode and standard deviation value for students was found to be 62.98, 63, 62 and 7.67 respectively. Skewness was negative and was found to be -1.36. Kurtosis was found to be 6.33, which is positive. Hence the data is leptokurtic by nature.

**Hypothesis 2:** The mean, median, mode and standard deviation value for male students was found to be 62.98, 63, 62 and 7.67 respectively. Skewness was negative and was found to be -1.36. Kurtosis was found to be 6.33, which is positive. Hence the data is leptokurtic by nature.

**Hypothesis 3:** The mean, median, mode and standard deviation value for female students was found to be 63.73, 64, 62 and 6.35 respectively. Skewness was negative and was found to be -0.22. Kurtosis was found to be 1.42, which is positive. Hence, the data is leptokurtic by nature.

**Hypothesis 4:** The mean, median, mode and standard deviation value for English medium students was found to be 63.01, 63.65 and 7.36 respectively. Skewness was negative and was found to be -1.22. Kurtosis was found to be 5.81 which is positive. Hence, the data is leptokurtic by nature.

**Hypothesis 5:** The mean, median, mode and standard deviation value for Urdu medium students was found to be 62.87, 63, 62 and 8.80 respectively. Skewness was negative and was found to be -1.66. Kurtosis was found to be 7.27 which is positive. Hence, the data is leptokurtic by nature.





Table 1.3: Relevant Inferential Statistics

	No	Mean	t value	p value	LoS
Male Students	52	59.46	3.73	0.00023	S
Female Students	245	63.73			
English Medium Students	236	63.01	0.13	0.90	NS
Urdu Medium Students	61	62.87			
English Medium Male Students	34	59.38	3.17	0.001	S
English Medium Female Students	202	63.62			
Urdu Medium Male Students	18	59.61	1.91	0.06	NS
Urdu Medium Female Students	43	64.23			
English Medium Male Students	34	59.38	0.07	0.94	NS
Urdu Medium male Students	18	59.61			
English Medium Female Students	202	63.62	0.57	0.57	NS
Urdu Medium Female Students	43	64.23			

Hypothesis 6, 7 and 8 were tested using inferential analysis.

**Hypothesis 6:** The t value for male and female students was found to be 3.73. The p value was found to be 0.0002 which is less than 0.01 and 0.05, thus it is significant. Therefore, null hypothesis is rejected. There is a significant difference in the level of computer anxiety among teenagers with respect to gender. The mean scores of Male students were 59.46 and female students was 63.73. The mean score of females is greater than that of male which indicates that the computer anxiety among females is greater than that of male students.

**Hypothesis 7:** The t value for English and Urdu medium students was found to be 0.13. The p value was found to be 0.90 which is more than 0.01 and 0.05, thus it is non-significant. There is no significant difference in the level of computer anxiety among English and Urdu medium Institutes. Therefore, null hypothesis is accepted. There is no significant difference in the level of computer anxiety among teenagers with respect to the medium of



instruction.

**Hypothesis 8:** The t value for English medium male and female students was found to be 3.17. The p value was found to be 0.001 which is less than 0.05, thus it is significant. Therefore, null hypothesis is rejected. There is a significant difference in the level of computer anxiety among teenagers of English medium students with respect to gender. The mean scores of male students were 59.38 and female students was 63.62. The mean scores of female students of English medium school are greater than male students of English medium schools which indicates that computer anxiety is greater in female of English medium than that of male students of English medium.

The t value for Urdu medium male and female students was found to be 1.91. The p value was found to be 0.06 which is more than 0.01 and 0.05, thus it is non-significant. There is no significant difference in the level of computer anxiety among teenagers belonging to Urdu Medium Institutes. Therefore, null hypothesis is accepted. There is no significant difference in the level of computer anxiety among Urdu medium students with respect to gender.

The t value for male students of English and Urdu medium was found to be 0.07. The p value was found to be 0.94 which is more than 0.01 and 0.05, thus it is non-significant. There is no significant difference in the level of computer anxiety among male teenagers from English and Urdu medium Institutes. Therefore, null hypothesis is accepted. There is no significant difference in the level of computer anxiety among Male students from both medium of instruction i.e. English and Urdu.

The t value for female students of English and Urdu medium was found to be 0.57. The p value was found to be 0.57 which is more than 0.01 and 0.05, thus it is non-significant. There is no significant difference in the level of computer anxiety among female teenagers from English and Urdu medium Institutes. Therefore, null hypothesis is accepted. There is no significant difference in the level of computer anxiety among Female students from both medium of instruction i.e. English and Urdu.

#### **Discussion and Conclusion**

There is a vast amount of literature available on relating gender to computer anxiety and the findings are conflicting. One set of research findings revealed that males have more positive attitudes and less computer anxiety when compared to females (Anderson, 1987; Chambers and Clarke, 1987; Colley et al., 1994; Hattie and Fitzgerald, 1987; Krendl and Broihier, 1992; Okebukola, 1993). However, in another set of studies, females were found to have more positive attitudes and less computer anxiety level than males (Lever, Sherrod, and Bransford, 1989; Loyd, Loyd, and Gressard, 1987; Siann, Macleod, Glisso, and Durndell, 1990; Swadener and Jarrett, 1987). Few other studies found negligible differences between male and female computer anxiety levels (Chen, 1986; Colley et al., 1994; Collis, 1985; Collis and Williams, 1987; Kay, 1992; Scott and Rockwell, 1997).

The present study reflected that Females had a higher level of computer anxiety as compared to males. Also, when the sample was classified as per gender and medium of instruction of educational institute it was found that male students from English medium and Urdu medium did not differ in their computer anxiety levels, similarly female students from both medium of instruction did not vary, whereas on the other hand male students from English medium institutes had a lower computer level anxiety as compared to female students from the same institute. Urdu medium male and female students had a similar level of computer anxiety.



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Within the context of arguing that the exploration of gender issues with respect to computer anxiety is important, this study tried to investigate the relationships between computer anxiety in relation to gender and medium of instruction of educational institutes. The study reflected that female students had a higher level of computer anxiety as compared to males. Also, while comparing based on the medium of instruction, both Urdu medium students and English medium students had equal level of anxiety. While comparing male and female students based on medium of instruction it was found that Urdu medium students did not differ in computer anxiety level based on gender, but English medium students did. Females belonging to English medium institutes had a higher anxiety level as compared to male students from English medium institutes.

In a study conducted by Olatoye (2009) Analysis of data revealed that there was a significant difference between male and female students with regards to computer utilization. This could be one of the reasons that could affect computer anxiety. Female students may vary in the opportunity to use computers as compared to male students, thus making them more anxious. Lack of computer experience is one of the most common reasons that leads to anxiety. Using a computer and the Internet requires a certain amount of practice, skills and perseverance (Gupta and Kapri, 2018). Considering the Indian background, it can be stated that females have less computer experience and lack skills to deal with computers which acts as a catalyst in increasing their computer anxiety level when compared to male students. Another study by Al-Jabri (1996) revealed that male students are less anxious about learning and using computers, more confident in their ability to use and learn about computers, and like or enjoy working with computers more than female students.

Computer anxiety is assumed to be a substantial barrier influencing the use of computers ultimately influencing the academic activities of students. The students who can access information conveniently, process the acquired knowledge and data using computers and are able to apply technological gadgets for educational purposes and in their day-to-day life will have a competitive advantage in national and international markets. This requires students to be confident about using computers which is only possible with low anxiety levels. The increasing demand for adult computer training has led to many issues and challenges for educators, especially teachers. Computer anxiety can be significantly reduced if educators create a comfortable learning environment where a positive attitude is inculcated among students with positive experiences with computers irrespective of gender and language. (Hakkinen, 1994, p. 152).

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