

# A COMPARATIVE STUDY OF COMPUTER ANXIETY AMONG SECONDARY SCHOOL STUDENTS

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## Abstract

*A computer is an electronic data processing device, which can write, compute, compare, store and process data with high speed, accuracy and reliability. Computers hold tremendous significance. Many of us will feel crippled without a computer, as we have gotten so used to this machine. The importance of computers cannot be denied in schools, business world, at work place and even in one's personal life. In the modern workplace, pen, paper are becoming extent. Same is the case in schools and colleges as use of computer is increasingly rapidly. Many factors have been reported to influence computer anxiety. For example, Doyle, Stamouli and Huggard, (2005) found that computer anxiety decreases with increasing experience and knowledge of computer. In the present study, Descriptive Survey Method of research was used to collect the data of computer anxiety among secondary school students. The sample for the study consisted of 320 students of class 8th randomly selected from four government and four private secondary schools located at Faridabad district of Haryana state. The schools were selected on the basis of convenient sampling whereas simple random technique was followed to select the 8th class students. The instrument used to collect the computer anxiety data was based on the self-developed Computer Anxiety Rating Scale (CARS). The findings of the study show that majority of secondary school students had moderate level of computer anxiety. The students having extremely high anxiety should be motivated to change their perception towards use of computer. The students of rural secondary schools were found to be are more anxious towards computer in comparison to the students studying in urban secondary schools. The girls of secondary schools were found experiencing more computer anxiety than the boys of secondary schools.*

**Keys Words:** Anxiety; Computer Anxiety; Secondary school Students

## INTRODUCTION

Information Communication Technology has become an integral part of our society. Exposure to this new medium gives one the opportunity to acquire unlimited amount of knowledge and a chance to communicate with others around the world. Information Communication Technology (ICT) is now a fast way to create, send and consume new information. Computer- Mediated Communication (CMC) extends mental capabilities and enhances our intellect (Backer, 1994).

“A computer is an electronic device that can perform a variety of operations according to a set of instructions called **Program**”.

“A computer is a device or Machine for making calculations or controlling operations that are expressions in numerical or logical terms. “

Computer is playing a major role to make work more effective and accurate in almost every field. Even it can help us to remember any information for an unlimited time. Computer is used to type documents, send email, and surf internet. It can also be used to handle spreadsheets, according to database management, presentations, games, and desktop publishing, railway reservations, weather forecasting, error detection.

The computers have created a revolution in the content of education and in the nature of learning process. Computers have the capability of multiplying the human intellect beyond part conceptions and have tremendous implications in education. Computer has a great impact on our education system. Computer could also resolve

certain problem and derive benefit including reduction in time and make available standard and quality information it will also improve the efficiency of the user. In the field of education it is very useful in teaching-learning process. Therefore computer literacy or knowledge is very much required for teachers as well as students. Computer can be defined in terms of its functions. It can accept data, store data, process data as desired, and retrieve the stored data as and when required and print the results in the desired format. **Shinn (2001)** asserted that for a school to remain competitive it also must adapt to changes and be innovative with its use of computer. In this era of technology advancement, computer education is considered to be an ingredient of education.

Computers are being increasingly used in teaching and learning at all levels. The role of computer is essential in promoting not only on 'e-learning' but it can be also used in modern applications in the field of education. Computer Anxiety of the Secondary school students is independent of one's school kind, school system and tuition undergoing and dependent of one's sex, group studying, locality of school, study habit, computer course undergone and browsing habit.

Anxiety is a psychological and physiological state characterized by cognitive, somatic, emotional, and behavioural components. These components combine to create an unpleasant feeling that is typically associated with uneasiness, fear, or worry. The symptoms of anxiety are restlessness, easily tired, trouble connecting, irritability, frequent urination, palpitations, backache, trembling etc.

### **COMPUTER ANXIETY**

Computer anxiety is a specific anxiety that regularly occurs in a specific type of situation (Harris & Grangennet, 1997). According to Rossen, Sears and Weil (1987), computer interaction will be, or already is, an integral part of most academic majors. According to Raub (1981) computer anxiety is "the complex emotional reactions that are evoked in individuals who interpret computers as personally threatening". Computer anxiety manifests itself in many forms and results in a number of common fears. Users are afraid that they will break the computer or destroy vital information. They feel awkward and fear looking stupid.

Computer anxiety is a term widely used to describe the fear or apprehension experienced by certain individuals when using or considering using a computer. It is a common emotional response to computers characterized by the fear that many adults exhibit. Fear and anxiety toward subject matter are "conditions that tend to support negative learner attitudes and repel adult interest". Interaction may incite a variety of emotional responses, including anxiety. The fear of computers interferes with the communicative nature of human-computer interaction.

Lack of computer experience is one of the most obvious reasons for this anxiety. Using a computer and the Internet requires a certain amount of practice and perseverance. As you acquire more and more knowledge of computers along the way, you will automatically discover how useful using a computer can be in daily life. The Visual Steps books offer a lot of support for learning how to use a computer and surfing the Internet. These books are written according to the Visual Steps method. An important characteristic of this method is the way in which you receive step-by-step instructions, accompanied by visual aids by means of numerous screenshots of all the operations. In this way, you will see exactly where to click at each step and you will see the results of your actions right away.

### **NEED AND SIGNIFICANCE OF THE STUDY**

Computer plays an important role in our life and computer education is the preparation of whole society for the computer age. This preparation should take into account differences in age groups as well as differences between professional categories. In order to prepare youth who are perfectly at ease in a constantly evolving computerized society which is based on equality of opportunity, the introduction to informatics should begin in nursery school or at least at elementary school. So, it is necessary that the students should have knowledge of computer.

Anxiety is a normal human emotion. Anxiety stimulates an anticipatory and adaptive response to challenging or stressful events. Computer anxiety is a negative feeling of towards computer technology in which the computer users experience discomfort, stress, or fear in front of computer or using it. At one time or another, most of us have experienced or heard about computers doing funny things. Some people can become very anxious when they contemplate using computers and fear they do not have the knowledge or ability to do so.

Computers anxiety affects virtually all strata of our society from children and adults to seniors and education have an area of a great deal of study and research. Computer anxiety is a feeling of being fearful or

apprehensive when using or considering the use of computers. Some researchers prefer to apply more technical terms to the phenomena such as 'Technophobia', 'Cyber phobia'. While technophobia refers to a general fear of all things technological, Cyber phobia focuses more specifically on computers. "Anxiety itself is defined as a painful uneasiness of mind or an abnormal apprehension of fear often accompanied by psychological change such as sweating or increased pulse."

Various studies have been conducted on attitude towards computer use in relation to gender, but a very few studies have been conducted on anxiety and phobia towards computer use with respect to locality and gender. Keeping in view the critical analysis of the findings from the review of literature, the present study was selected as, "a study of computer anxiety among secondary school students".

If this research is fruitful something could be done to eliminate computer anxiety among secondary students of government school. So, the investigator tempted to conduct a research to compare the computer anxiety of rural and urban students in their demographic way. The study can be helpful for the students, teachers, management and government bodies for construction of curriculum and effective computer education for various stages of school education and college students.

### STATEMENT OF THE PROBLEM

The study under investigation is entitled as, "A Comparative Study of Computer Anxiety among Secondary School Students."

### OBJECTIVES OF THE STUDY

Keeping in view the above background the study has following objectives:

1. To find computer anxiety of secondary school students.
2. To find computer anxiety of Government secondary school students.
3. To find computer anxiety of Private secondary school students.
4. To find computer anxiety of students of urban secondary schools.
5. To find computer anxiety of students of rural secondary schools.
6. To compare computer anxiety between Government and private secondary school students.
7. To compare computer anxiety between boys and girls of secondary schools.
8. To compare computer anxiety between students of urban and rural secondary schools.

### HYPOTHESES OF THE STUDY

In the light review of literature, objectives and problem, following null hypothesis are formulated:

1. There will be no significant difference between government and private secondary school students with respect to their computer anxiety.
2. There will be no significant difference in computer anxiety between boys and girls of secondary schools.
3. There will be no significant difference in computer anxiety between students of urban and rural secondary schools.

### DESIGN OF THE STUDY

In the present study, Descriptive Survey Method of research was used to collect the data. A survey instrument was used to collect data to test the hypotheses. The instrument used to collect the computer anxiety data was based on the self-developed Computer Anxiety Rating Scale (CARS).

**Population:** The universe or collection of all elements being described or measured by a sample is called population. The population of the study comprised of students studying in class 8th in secondary schools located at Faridabad district of Haryana.

**Sample of the study:** A sample is a small proportion of a population selected for observation and analysis. The sample for the study consisted of 320 students of class 8th randomly selected from four government and four private secondary schools located at Faridabad district of Haryana state. The schools were selected on the basis

of convenient sampling whereas simple random technique was followed to select the 8th class students.

### TOOLS USED IN THE STUDY

“Computer Anxiety Rating Scale” developed and Standardized by the investigator was used for data collection.

### PROCEDURE OF DATA COLLECTION

Before administering the tool, investigator put the students at the ease by explaining the purpose of administration and motivated them to give their responses or opinions honestly. The respondents were also assured that the information provided by them would be kept secret and is not related to their academics. The principals of selected schools were approached for the permission for the collection of data. The time schedule was prepared for each school and principal was informed accordingly.

### DELIMITATION OF THE STUDY

1. Only Secondary School students were selected as a sample of study.
2. Only 8<sup>th</sup> standard students of Faridabad district were taken as a sample of study
3. Both Government and private secondary schools was selected for study.

### ANALYSIS AND INTERPRETATION

#### COMPUTER ANXIETY AMONG SECONDARY SCHOOL STUDENTS

The mean and standard deviation of the raw scores of computer anxiety were calculated in order to calculate z-scores. The table 1, given below shows the ranges of raw scores, ranges of z-scores, various levels of computer anxiety ranges and number of students under various levels of computer anxiety scale.

S. N.	Range of Raw Scores	Range of z-scores	Level of Computer Anxiety	No. of Students
1	149 & above	+2.01 & above	Extremely High	10
2	128-148	+1.26 to +2.00	High	32
3	106-127	+0.51 to +1.25	Above Average	46
4	77-105	+0.50 to -0.50	Moderate	129
5	56-76	-0.51 to -1.25	Below Average	66
6	36-75	-1.26 to -2.00	Low	37
7	35 & below	-2.01 & below	Extremely Low	00
	<b>Total</b>			<b>320</b>

On analysing the data of level of computer anxiety of 320 secondary school students it was concluded that 10 students of secondary schools were found at extremely High level of computer anxiety while 32 students were found under High level, 46 students were at above average level, 129 students at moderate level, 66 students at Below Average level, 37 students at Low and not a single student of secondary schools were found at extremely Low level of computer anxiety.

From the collected data it has come to know that the maximum number of secondary school students was found under moderate level of computer anxiety.

**Computer Anxiety among Government Secondary School Students:** The table 2, given below shows the ranges of raw scores, ranges of z-scores, various levels of computer anxiety ranges and number of students under various levels of computer anxiety scale.



S. N.	Range of Raw Scores	Range of z-scores	Level of Computer Anxiety	No. of Students
1	149 & above	+2.01 & above	Extremely High	9
2	128-148	+1.26 to +2.00	High	22
3	106-127	+0.51 to +1.25	Above Average	28
4	77-105	+0.50 to -0.50	Moderate	68
5	56-76	-0.51 to -1.25	Below Average	23
6	36-75	-1.26 to -2.00	Low	10
7	35 & below	-2.01 & below	Extremely Low	0
	<b>Total</b>			<b>160</b>

On analysing the data of level of computer anxiety of 160 Government secondary school students it was concluded that 9 students of Government secondary schools were found at extremely High level of computer anxiety while 22 students were found under High level, 28 students were at above average level, 68 students at moderate level, 23 students at Below Average level, 10 students at Low and not a single student of s Government secondary schools were found at extremely Low level of computer anxiety. From the collected data it has come to know that the majority of Government secondary school students were found under moderate level of computer anxiety.

**Computer Anxiety among Private Secondary School Students:** The table 3, given below shows the number of private secondary school students under various levels of computer anxiety scale.

S. N.	Range of Raw Scores	Range of z-scores	Level of Computer Anxiety	No. of students
1	149 & above	+2.01 & above	Extremely High	1
2	128-148	+1.26 to +2.00	High	10
3	106-127	+0.51 to +1.25	Above Average	18
4	77-105	+0.50 to -0.50	Moderate	61
5	56-76	-0.51 to -1.25	Below Average	43
6	36-75	-1.26 to -2.00	Low	27
7	35 & below	-2.01 & below	Extremely Low	0
	<b>Total</b>			<b>160</b>

On analysing the data of level of computer anxiety of 160 private secondary school students it was concluded that only 1 student of private secondary schools was found under extremely high level of computer anxiety while 10 students were found under High level, 18 students were at above average level, 61 students at moderate level, 43 students at Below Average level, 27 students at Low and not a single student of private secondary schools were found at extremely low level of computer anxiety. From the collected data it has come to know that the maximum number of private secondary school students was found under moderate level of computer anxiety.

**Computer Anxiety among Urban Secondary School Students:** The table 4, given below shows the number of urban students under various levels of computer anxiety.

S. N.	Range of Raw Scores	Range of z-scores	Level of Computer Anxiety	No. of students
1	149 & above	+2.01 & above	Extremely High	2

2	128-148	+1.26 to +2.00	High	11
3	106-127	+0.51 to +1.25	Above Average	19
4	77-105	+0.50 to -0.50	Moderate	62
5	56-76	-0.51 to -1.25	Below Average	40
6	36-75	-1.26 to -2.00	Low	26
7	35 & below	-2.01 & below	Extremely Low	0
	<b>Total</b>			<b>160</b>

On analysing the data of level of computer anxiety of 160 urban secondary school students it was concluded that only 2 students of urban secondary schools was found under extremely high level of computer anxiety while 11 students were found under High level, 19 students were at above average level, 62 students at moderate level, 40 students at Below Average level, 26 students at Low and not a single student of urban secondary schools was found at extremely low level of computer anxiety.

**Computer Anxiety among Rural Secondary School Students:** The table 5, given below shows the ranges of raw scores, ranges of z-scores, various levels of computer anxiety ranges and number of rural students under various levels of computer anxiety.

S. N.	Range of Raw Scores	Range of z-scores	Level of Computer Anxiety	No. of students
1	149 & above	+2.01 & above	Extremely High	8
2	128-148	+1.26 to +2.00	High	21
3	106-127	+0.51 to +1.25	Above Average	27
4	77-105	+0.50 to -0.50	Moderate	67
5	56-76	-0.51 to -1.25	Below Average	26
6	36-75	-1.26 to -2.00	Low	11
7	35 & below	-2.01 & below	Extremely Low	0
	<b>Total</b>			<b>160</b>

On analysing the data of level of computer anxiety of 160 rural secondary school students it was concluded that only 8 students of rural secondary schools was found under extremely high level of computer anxiety while 21 students were found under High level, 27 students were at above average level, 67 students at moderate level, 26 students at Below Average level, 11 students at Low and not a single student of rural secondary schools was found at extremely low level of computer anxiety. From the collected data it has come to know that the maximum number of rural secondary school students was found under moderate level of computer anxiety.

#### **COMPARISON OF COMPUTER ANXIETY BETWEEN GOVERNMENT AND PRIVATE SECONDARY SCHOOL STUDENTS**

The table 6 shows relevant statistics i.e. mean, standard deviation (SD), and t- ratio between the mean scores of computer anxiety of government and private secondary school students.

Group	N	Mean	S.D.	t-value	Remarks
Government School Students	160	96.075	30.299	2.99	Significant
Private School Students	160	86.675	25.765		

It is clear from the calculated data that the government school students were found to be more anxious towards the use of computer in comparison to the students of private secondary schools. The calculated t-value of mean scores of computer anxiety between government and private school students was calculated to be 2.99 which is greater than the tabulated t- value (1.96) at 0.05 level of significance. Therefore, it is clear that two groups differ significantly on their computer anxiety scale.

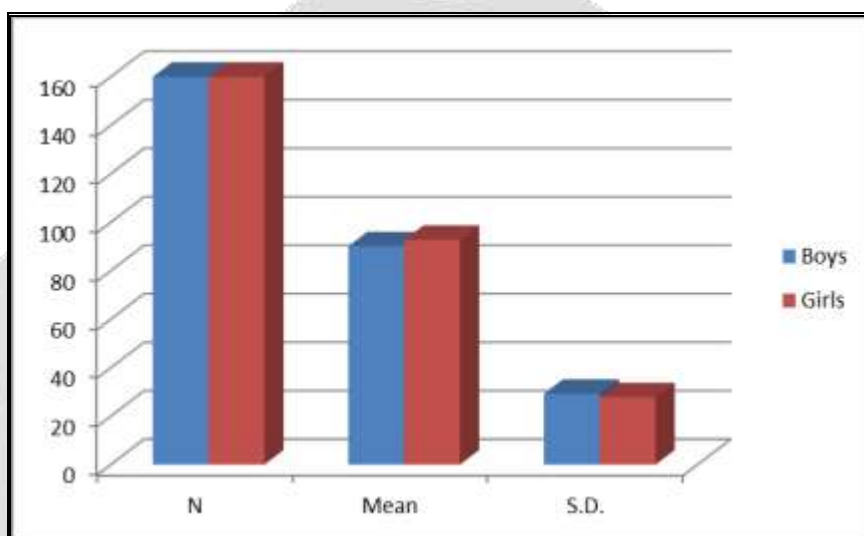
#### **COMPARISON OF COMPUTER ANXIETY BETWEEN BOYS AND GIRLS STUDYING IN**

## SECONDARY SCHOOLS

Mean Comparison of Computer anxiety between boys and girls studying in secondary schools are given here:

Group	N	Mean	S.D.	t-value	Level of significance
Boys	160	90.062	29.197	<b>0.82</b>	<b>Insignificant</b>
Girls	160	92.687	27.756		

The finding shows that the girls were found to be more anxious towards the use of computer in comparison to the boys of secondary schools. The calculated t-value between mean scores of boys and girls of secondary schools was calculated to be 0.82 which is less than the tabulated t-value (1.96) at 0.05 level of significance. So, it is clear from the table that two groups do not differ significantly on their computer anxiety scale.



*Graph 1: Mean and S.D. of Computer Anxiety between Boys and Girls*

It is clear from the graph -1 that the mean score of computer anxiety of girls of secondary school is higher than the mean score of computer anxiety of boys of secondary schools which is statistically not significant.

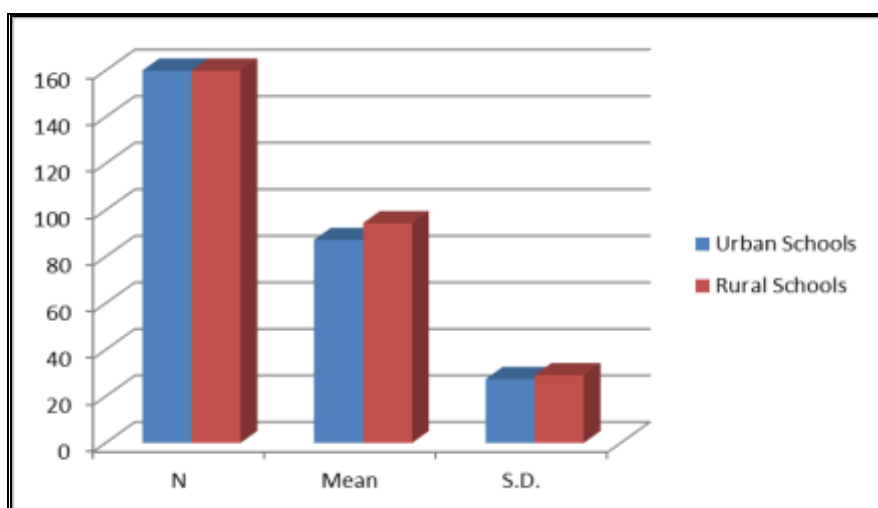
## COMPARISON OF COMPUTER ANXIETY OF URBAN AND RURAL STUDENTS

The table 8 shows relevant statistics of computer anxiety between urban and rural students of secondary schools:

Students	N	Mean	S.D.	t-value	Level of Significance
Urban Schools	160	87.26	27.48	<b>2.28</b>	<b>Significant</b>
Rural Schools	160	94.48	29.17		

The finding of study shows that the students of rural secondary schools were found to be more anxious towards computer in comparison to the students studying in urban area of secondary schools. Both the groups differ in the scale of computer anxiety.

It is evident from graph 2 that the mean score of computer anxiety of the students studying in rural area is higher than the mean score of computer anxiety of students studying in secondary schools located in urban area.



*Graph 2: Mean and S.D. of Computer Anxiety between Urban and Rural Students*

The t- value between the mean scores of computer anxiety of students of urban and rural secondary schools is calculated to be 2.28 which is significant at 0.05 level of significance. Thus, there exists a significant difference in computer anxiety between the students studying in secondary schools located in urban and rural area of Faridabad. The reason behind may be the locale.

## MAJOR FINDINGS

The major findings of the study are given below:

- From the collected data it has come to know that the maximum number of secondary school students was found under moderate level of computer anxiety.
- Only a few students were found under extremely high but not a single student of secondary school was found extremely low level of computer anxiety.
- No any student of Government secondary schools was found under extremely low level of computer anxiety.
- Majority of students of private secondary schools were found under moderate level of computer anxiety. No any student of private secondary schools was found under extremely low level of computer anxiety.
- Majority of urban secondary school students had moderate level of computer anxiety. No any student of private secondary schools was found under extremely low level of computer anxiety.
- From the collected data it has come to know that the maximum number of rural secondary school students was found under moderate level of computer anxiety. No any student of private secondary schools was found under extremely low level of computer anxiety.
- It is clear from the calculated data that the government school students were found to be more anxious towards the use of computer in comparison to the students of private secondary schools.
- There exists a significant difference between government and private secondary school students with respect to their computer anxiety.
- The mean score of computer anxiety of girls of secondary school is higher than the mean score of computer anxiety of boys of secondary schools which is statistically not significant.
- The finding shows that the girls were found to be more anxious towards the use of computer in comparison to the boys of secondary schools.
- The finding of study shows that the students of rural secondary schools were found to be are more anxious towards computer in comparison to the students studying in rural area of secondary schools.
- The mean score of computer anxiety of the students studying in rural area is higher than the mean score of



computer anxiety of students studying in secondary schools located in urban area.

- There existed a significant difference in computer anxiety between the students studying in secondary schools located in urban and rural area of Faridabad.

## CONCLUSION

Computers are the inevitable tools for the modern technology of the world. Computer has become an essential part of our life. Computer anxiety is a 'fear of using computers'. Computers are used in mostly private schools so there is no fear of computer anxiety and phobia in that secondary students but it is found that the students of government secondary schools had computer anxiety in their mind. There have been growing concerns that the students of government secondary schools possess negative attitude towards the use of computers and it prevents them from reaping the pedagogical, social, economic benefits of computer technology. The students of secondary schools of rural area were found to be more anxious towards use of computers than the students of secondary schools of urban area because the students of rural secondary schools were not having better computer facilities in their schools, so, to remove computer anxiety among them it is necessary to avail them better computer facilities in their schools. It is required that female students should also be encouraged and motivated towards the computer use in order to reduce their anxiety and phobia towards use of computers. The government at all levels should provide computer systems for student use in schools. Adequate training in the use of computer tools should be stressed in the curriculum of the teacher-trainees and government should make provision for enough computers in schools.

## EDUCATIONAL IMPLICATIONS

In view of our findings following educational implications can be laid down:-

- Appropriate ongoing professional development programmes should be undertaken to promote computer competence in curriculum development, instructional materials, and classroom management and evaluation process.
- Be conscious to care the students regarding computer education in all educational activities in and out of school.
- Create a relaxed computer learning atmosphere and extra classes should be provided to students to teach computers to remove their computer anxiety.
- Government should take more initiatives to provide computer training course among the rural based government students.
- Meet the individual learning needs of students and assist each student to maximize his or her learning outcomes by using computers.
- Provide a verbal and written outline to students for proper use of computers and separate computer training programmes should be provided to weak students.
- Specialized courses on a range of topics, such as computer applications across the curriculum and classroom management should be organized.
- Teacher should undertake the varying problems related to computers of different students and try to reduce them.
- Teachers need to always be available to fill in possible gaps and provide constant reassurance to students towards use of computer.
- Teachers should have positive attitude towards computer and new technology.
- The school authorities should come forward to provide more computer based training to government school female students.
- To reduce computer anxiety teachers should encourage optimum hands on experience in reducing the computer anxiety among students.
- Various seminars and lectures by the experts should be arranged to give better computer education to students practically in real situation.

### SUGGESTIONS FOR FURTHER RESEARCH

1. A similar study on a larger sample students belonging to other district may be undertaken.
2. A comparative study of computer anxiety of rural school students and urban school students should be under taken comparing with college students.
3. A study may be conducted to know the effectiveness of students training programmes, and workshops and refresh courses to develop positive attitudes towards computer.
4. A similar study may be conducted to identify the devices to enhance computer competencies and reduce computer anxiety among students.
5. A similar study may be conducted in determining the significant correlates and the challenges in computer education.
6. The study may be conducted in order to know some techniques to reduce computer anxiety among secondary school students.
7. Further research may be conducted to design the quality of instruction in relation to computer anxiety reduction.

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