

A Study on Computer Anxiety and Their Academic Achievement among Higher Secondary School Students in Tiruchirappalli District

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1. INTRODUCTION

Many students are woefully unprepared for the high level of technology found in academic libraries today. Students discover their research skills are inadequate for the computerized libraries of today, especially if they are adult learners who have been away from academic studies for a while. The intricacy of research requires searching beyond Internet sources. Students need to learn research skills, some truly learning them for the first time at the same time they must also learn a new online catalog, databases, interlibrary loan/document delivery procedures, electronic reserves, and other technical library applications. The technological changes found in the library have moved from the backrooms of the acquisitions, cataloging, and circulation departments to the front desk of the reference area. The library's old wooden card catalog is now a computerized online catalog greeting students and patrons as they enter into the libraries of today. Students accustomed to the Dewey Classification System and paper indexes now must learn the Library of Congress Classification System, resources in different formats, and databases.

1.1. Computers in Education

The computer technology has a deep impact on education. Computer education forms a part of the school and college curricula, as it is important for every individual today, to have the basic knowledge of computers. The advantages of computers in education include an efficient storage and rendition of information, quick information processing and very importantly the saving of paper. Know more about the importance of computer education. Computer teaching plays a key role in the modern systems of education. Students find it easier to refer to the Internet than searching for information in fat reference books. The process of learning has gone beyond learning from prescribed textbooks. Today, aspirers can satiate their thirst for knowledge by means of the Internet. It is easier to store information on computers than maintaining hand-written notes. To know more on the subject, read about textbooks versus computer teaching.

Online education has revolutionized the education industry. The computer technology has made the dream of distance learning, a reality. Education is no more limited to classrooms. It has

reached far and wide thanks to the computer technology. Physically distant locations have come close to each other only due to computer networking.

Computers facilitate an efficient storage and effective presentation of information. Presentation software like PowerPoint and animation software like Flash and others can be of great help to the teachers while delivering information. Computers can turn out being a brilliant aid in teaching. Computers facilitate an audio-visual representation of information, thus making the process of learning interactive and interesting. Computer-aided teaching adds a fun element to education. Internet can play an important role in education. As it is an enormous information base, it can be harnessed for the retrieval of information on a wide variety of subjects. The Internet can be used to refer to information on various subjects to be taught to the students.

1.2. Academic Achievement

Education is the knowledge of putting one's potentials to maximum use. We can safely say that a human being is not in the proper sense until he/she is educated. Every human being has their own academic achievement. It can start from nothing to a large amount. Academic achievement has become an educational touchstone. The definition of academic achievement, however, varies among educators, policymakers and other educational stakeholders. India is going through a transitional period. There is a fundamental shift from traditional outlook towards education. This change is not very unprecedented, considering the vast changes in the rubric of society, its polity and economics. This is a period of open entry to all.

Everyone now stands a chance to contribute towards development by their own way of changing, irrespective of the caste, creed, religion, ethnicity and gender in various spheres of the society. This is by accepting responsibilities, aspiring to lead the society, being oriented, being focused and important of all, refusing to be pushed around by others. All this can be achieved by originating one's own behavior that is by being an origin, not a pawn. In this background, it is important to train the youngsters to walk a very fine line to be origins, not pawns, to help them to take up independent learning strategies and ultimately lead them to achieve high in academics and other fields too.

1.3. Anxiety

Use of technology sometimes has unpleasant side effects, which may include strong, negative emotional states that arise not only during interaction but even before, when the idea of having to interact with the computer begins. Frustration, confusion, anger, anxiety, and similar emotional states can affect not only the interaction itself, but also productivity, learning, social relationships, and overall well-being. There are a number of related definitions explaining what anxiety is: Leso and Peck (1992) define computer anxiety.

1.4. Definition of the Terms

Computer Anxiety

"A drive that motivates the organism to avoid the stimulus for anxiety". This implies that an individual will avoid the use of a computer in the presence of computer anxiety and if possible.

Academic Achievement

Marks obtained by the higher secondary student in their computer science paper in 1st revision exam are taken as academic achievement.

Higher Secondary Students

Higher Secondary Students are one who is capable of developing a desire to learn the techniques, principles and methods of learning and capable of modifying their behavior pattern in order to bring about desired behavioral changes in future.

1.5. Need for the Study

It would be particularly important to establish measures of psychological constructs that impact an individual's use of computers or performance for computer-based tasks. Two such variables are computer self-efficacy and computer anxiety. Anxiety has been argued to affect computer based learning by affecting levels of self-efficacy. 'No man is an Island', since the human person is living in the society, he/she has to interact with others. Relationship with others in the society is needed if one has to live his/her life peacefully and successfully. One who has a positive academic self-image of himself /herself can have a better academic achievement and also can reduce various stress of life. So if the Anxiety regarding technology like computer of the adolescents is healthy and positive, it would help him/her grow up positively and assist in adjusting the society in which he/she is a member and shine well in their academic as a result of it. Hence it is essential to study the relations that exist between Computer Anxiety and academic achievement.

1.6. Statement of the Problem

"A study on Computer Anxiety and their Academic Achievement among Higher Secondary School Students in Tiruchirappalli District".

1.7. Objectives of the Study

1. To find out significant difference between the Male and Female Higher Secondary School Students with respect to Computer Anxiety and Academic achievement.
2. To find out significant difference between the XI and XII standard Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement.

3. To find out significant difference among the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their type of management.
4. To find out significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on having personal computer in Home.
5. To find out significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their Father's Qualification.
6. To find out significant relationship between the Computer Anxiety and Academic Achievement of Higher Secondary School Students.

1.8. Hypotheses of the Study

1. There is no significant difference between the Male and Female Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement.
2. There is no significant difference between the XI and XII standard Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement.
3. There is no significant difference among the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their type of management.
4. There is no significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on having personal computer in Home.
5. There is no significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their Father's Qualification.
6. There is no significant relationship between the Computer Anxiety and Academic Achievement of Higher Secondary School Students.

2. METHOD

2.1. Description of the Tools

2.1.1. Computer Anxiety Scale

The tool consists of 19 items to measure the anxiety of computer. The investigator selected a five-point scale in English to measure the sample. The statement is in both positive and negative type of statement for measurement.

2.1.2. Reliability

The reliability coefficient of the computer anxiety inventory has been computed by using the odd even method. The reliability coefficient was computed by spearman brown formula. Obtaining a value of 0.586 indicating, that the tool was highly reliable.

2.1.3. Validity

The draft form of the tool with 19 statements is given to subject experts and lecturers of Sivanthi College of Education, Chennai for the final form. After correction made by experts, the investigator selected the tool for the data collection. Thus, the validity of the tool was established. The validity of the score was calculated by taking the square root of reliability. In the case of computer anxiety inventory it is found to be 0.7655, also suggesting that tool is valid.

2.2. Statistical Techniques Used

Suitable descriptive and inferential statistical techniques were used in the interpretation of the data to draw out a meaningful picture of results from the collected data. In the present study, the following statistical measures were used.

- Mean
- Standard Deviation
- t- test
- F-ratio
- Correlation

2.3. Limitations

The study is restricted to 240 students in higher secondary schools, students were taken only from Tiruchirappalli District, and 120 Male and 120 Female students only considered for this study.

3. RESULTS

3.1. Null Hypothesis 1

There is no significant difference between the Male and Female Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement.

Table 1: Table shows the significant difference between the Male and Female Higher Secondary School Students with respect to Computer Anxiety.

Variable	Gender	N	Mean	SD	't' - value	Significance
Computer Anxiety	Male	120	43.19	8.819	3.374	S*
	Female	120	47.50	10.859		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (3.374) is greater than the table value (2.58) at 0.01 levels. Hence there is a significant difference between Male and Female Higher Secondary School Students with regard to their Computer Anxiety. Therefore the above Null Hypothesis is rejected.

Table 2: Table shows the significant difference between the Male and Female Higher Secondary School Students with respect to Academic Achievement.

Variable	Gender	N	Mean	SD	't' - value	Significance
Academic Achievement	Male	120	65.10	16.969	3.157	S*
	Female	120	58.18	16.975		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (3.157) is greater than the table value (2.58) at 0.01 levels. Hence there is a significant difference between Male and Female Higher Secondary School Students with regard to their Academic Achievement. Therefore the above Null Hypothesis is rejected.

3.2. Null Hypothesis 2

There is no significant difference between the XI and XII standard Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement.

Table 3: Table shows the significant difference between the XI and XII Higher Secondary School Students with respect to Computer Anxiety.

Variable	Standard studying	N	Mean	SD	't' - value	Significance
Computer Anxiety	XI	120	44.81	9.927	0.824	NS
	XII	120	45.88	10.292		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (0.824) is lesser than the table value (1.96) at 0.05 levels. Hence there is no significant difference between XI and XII standard Higher Secondary School Students with regard to their Computer Anxiety. Therefore the above Null Hypothesis is accepted.

Table 4: Table shows the significant difference between the XI and XII Higher Secondary School Students with respect to Academic Achievement.

Variable	Standard studying	N	Mean	SD	't' - value	Significance
Academic Achievement	XI	120	63.39	16.450	1.573	NS
	XII	120	59.89	17.984		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (1.573) is lesser than the table value (1.96) at 0.05 levels. Hence there is no significant difference between XI and XII standard Higher Secondary School Students with regard to their Academic Achievement. Therefore the above Null Hypothesis is accepted.

3.3. Null Hypothesis 3

There is no significant difference among the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their type of management.

Table 5: Table shows the significant difference among the higher secondary school students with respect to computer anxiety based on their type of management

Variable	Type of management	N	Mean	S.D	't'-value	Significance
Computer Anxiety	Govt.	80	47.98	9.340	2.671	0.01
	Aided	80	43.85	10.176		
	Govt.	80	47.98	9.340	2.411	0.05
	Private	80	44.21	10.369		
	Aided	80	43.85	10.176	0.223	NS
	Private	80	44.21	10.369		

Level of Significance is 2.58 at 0.01 levels.

Inference

The above table clearly shows that there exists a significant difference between Governments vs. Aided school and Governments vs. Private Higher Secondary School Students based on their Computer Anxiety at 0.01 and 0.05 levels. And no significant is found among other type of schools Management. Hence the null hypothesis is partially rejected.

Table 6: Table shows the significant difference among the Higher Secondary School Students with respect to Academic Achievement based on their type of management

Variable	Type of management	N	Mean	S.D	't'-value	Significance
Academic Achievement	Govt.	80	49.61	10.236	5.721	0.01
	Aided	80	62.46	17.287		
	Govt.	80	49.61	10.236	11.427	0.01
	Private	80	72.85	15.036		
	Aided	80	62.46	17.287	4.055	0.01
	Private	80	72.85	15.036		

Level of Significance is 2.58 at 0.01 levels.

Inference

The above table clearly shows that there exists a significant difference between Governments vs. Aided, Government vs. Private, and Aided vs. Private for their Academic

Achievement at 0.01 level of Higher Secondary School Students based on their Academic Achievement. Hence the hypothesis is rejected.

3.4. Null Hypothesis 4

There is no significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on having personal computer in Home.

Table 7: Table shows the significant difference between the higher secondary school students with respect to computer anxiety based on having personal computer in home using mean scores.

Variable	Having personal computer in your home	N	Mean	S.D	't'-value	Significance
Computer Anxiety	Yes	202	45.08	10.496	0.925	NS
	No	38	46.74	7.657		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table, it is inferred that t- value (0.925) is lesser than the table value (1.96) at 0.05 levels. Hence there is no difference between the Higher Secondary School Students with respect to Computer Anxiety based on having personal computer in Home. Therefore the above hypothesis is accepted.

Table 8: Table Shows the Significant Difference between the Higher Secondary School Students With Respect To Academic Achievement Based On Having Personal Computer in Your Home Using Mean Scores.

Variable	Having personal computer in your home	N	Mean	S.D	't'-value	Significance
Academic Achievement	Yes	202	61.53	17.773	0.221	NS
	No	38	62.21	14.629		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table, it is inferred that t- value (0.221) is lesser than the table value (1.96) at 0.05 levels. Hence there is no significance difference between the Higher Secondary School Students with respect to Academic Achievement based on having personal computer in Home. Therefore the above hypothesis is accepted.

3.5. Null Hypothesis 5

There is no significant difference between the Higher Secondary School Students with respect to Computer Anxiety and Academic Achievement based on their Father’s Qualification.

Table 9: Table shows the significant difference between the Higher Secondary School Students with respect to Computer Anxiety based on their Father’s Qualification.

Variable	Father’s qualification	N	Mean	S.D	‘t’-value	Significance
Computer Anxiety	School level	49	45.10	8.931	0.189	NS
	College level	191	45.41	10.404		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (0.189) is lesser than the table value (1.96) at 0.05 levels. Hence there is no significant difference between School level and College level of father’s qualification Higher Secondary School Students with regard to their Computer Anxiety. Therefore the above Null Hypothesis is accepted.

Table 10: Table shows the significant difference between the Higher Secondary School Students with respect to Academic Achievement based on their Father’s Qualification.

Variable	Father’s qualification	N	Mean	S.D	‘t’-value	Significance
Academic Achievement	School Level	49	61.82	15.036	0.079	NS
	College level	191	61.60	17.855		

Level of Significance is 2.58 at 0.01 levels.

Inference

From the above table we may infer that the calculated value (0.079) is lesser than the table value (1.96) at 0.05 levels. Hence there is no significant difference between School level and College level of father’s qualification Higher Secondary School Students with regard to their Academic Achievement. Therefore the above Null Hypothesis is accepted.

3.6. Null Hypothesis 6

There is no significant relationship between the Computer Anxiety and Academic Achievement of Higher Secondary School Students.

Table 11: Table shows the relationship between the Computer Anxiety and Attitude towards Computer.

Variable	Number	Correlation
Computer Anxiety Vs. Academic Achievement	240	0.418

Inference

From the above table, it is observed that there is a positive relationship between Computer Anxiety and Academic Achievement of Higher Secondary School Students. Therefore, the null hypothesis is rejected.

3.7. Major Findings

1. It is found that there exists a significant difference between Male and Female Higher Secondary School Students with regard to their Computer Anxiety.
2. It is found that there exists significant difference between Male and Female Higher Secondary School Students with regard to their Academic Achievement.
3. It is found that there exists no significant difference between XI and XII standard Higher Secondary School Students with regard to their Computer Anxiety.
4. It is found that there exists no significant difference between XI and XII standard Higher Secondary School Students with regard to their Academic Achievement.
5. It is found that there exists there exists a significant difference between Governments vs. Aided school and Governments vs. Private Higher Secondary School Students based on their Computer Anxiety.

6. It is found that there exists a significant difference between Governments vs. Aided, Government vs. Private, and Aided vs. Private for their Academic Achievement.
7. It is found that there exists no difference between the Higher Secondary School Students with respect to Computer Anxiety based on having personal computer in Home.
8. It is found that there exists no significance difference between the Higher Secondary School Students with respect to Academic Achievement based on having personal computer in Home.
9. It is found that there exists no significant difference between School level and college level of father's qualification Higher Secondary School Students with regard to their Computer Anxiety.
10. It is found that there exists no significant difference between School level and college level of father's qualification Higher Secondary School Students with regard to their Academic Achievement.
11. It is found that there is a positive relationship between Computer Anxiety and Academic Achievement of Higher Secondary School Students.

3.8. Education Implications

Successful implementation of computers in the classroom is users' acceptance, which in turn might be greatly influenced by users' attitudes. For this reason, students' attitudes toward computers have been studied with different samples and instruments by many researchers since the 1980s. Anxiety has been found to be a predictor of the adoption of new technologies such as computers (Anderson et al., 1979).

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.

Computer anxiety is anxiety generated around the use of computers, referring to "a state of heightened tension or a feeling of apprehensive expectation".

3.9. Suggestion for Further Research

The investigators suggest the following few topics for the further research.

- The Relationship between Computer Anxiety and Computer Self-Efficacy
- Attitudes to Technology, Perceived Computer Self-Efficacy and Computer Anxiety as Predictors of Computer Supported Education

- Comparing Learners' State Anxiety during Task-Based Interaction in Computer-Mediated and Face-to-Face Communication
- Computerized Adaptive Testing, Anxiety Levels, and Gender Differences
- Paper-Based and Computer-Based Concept Mappings: The Effects on Computer Achievement, Computer Anxiety and Computer Attitude
- Assessing Pre-Service Teachers' Computer Phobia Levels in Terms of Gender and Experience.
- Computer Anxiety: A Comparison of Adolescents with and without a History of Specific Language Impairment

4. CONCLUSION

The findings of this research has shown that effective management of socio-demographic factors [like gender and field of study], and personality variables [like computer anxiety] could significantly predict how learners will relate to the computer, their persistence at studying computing and its allied courses as well as the development of interest in computer and computer related vocations. Helping our students to understand attribution and the influence of their attribution belief on their computer use can assist them to adopt more appropriate learning strategies. Met cognitive teaching approaches which foster reflective engagement are an important tool in reducing students' computer anxiety.

Computers have made a dramatic impact on the contemporary society. Almost all aspects of our lives are affected by computers to a significant degree. It is even difficult to imagine a job or a task that we can complete without using computers. Of course, the field of education is no exception. Computers are used increasingly in teaching and learning processes within all subject areas at all levels of schooling.

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