

A Study on Attitude of Secondary School Teachers Towards Information and Communication Technology (ICT) and Use of Computer in Education

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<https://doi.org/10.61410/had.v21i3.318>

Abstract

The present study entitled “A Study on Attitude of Secondary School Teachers towards Information and Communication Technology (ICT) and Use of Computer in Education” is an effort to study the attitude of secondary school teachers towards Information and Communication Technology (ICT) and use of computer in educational practices. The study assumes that Information and Communication Technology (ICT) has become an integral part of education in the modern era, which enhances the effectiveness of teaching, the interaction in the classroom and the learning experiences of students. The attitude of teachers towards ICT plays a vital role in the successful integration of technology in the teaching-learning process.

The study utilised descriptive research design to explore teachers’ attitude towards ICT and computer use in education. The sample comprised of 100 participants selected through purposive and random sampling techniques from the secondary schools of Lucknow district representing government and private institutions and Hindi and English medium schools. Descriptive statistics and t-test were used to analyse the data collected to compare the attitude across the gender, type of school and medium of instruction.

The results showed significant differences in attitude towards ICT and computer education in terms of gender, type of school and medium of instruction. Attitudes towards ICT were relatively more positive amongst male participants as compared to females. Similarly, private school participants had more positive attitudes than government school participants, largely due to better technological infrastructure and more exposure to ICT enabled learning environments. The participants from English medium schools also demonstrated more positive attitudes compared to their counterparts from Hindi medium schools, indicating disparities in access, language proficiency and technological exposure.

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The study concluded that effective integration of ICT in education depends on the availability of technological resources and the positive attitudes of educators. It recommends improving ICT infrastructure, providing regular professional development and training, encouraging equal access to technology and technology-supported teaching practices to improve the quality of secondary education. The results would guide educational policy development, teacher training programs and future research on ICT integration in schools.

Keywords: Information and Communication Technology (ICT), Computer Education, Secondary School Teachers, Attitude, Educational Technology, Computer Integration, Teaching-Learning Process.

1.1 INTRODUCTION

Education is very important for an individual's success in life. Education provides pupils teaching skills that prepare them physically, mentally, and socially for the world of work in later life. Education is generally seen as the foundation of society which brings economic wealth, social prosperity and political stability. Education is the means through which the aims and habits of a group of people lives on from one generation to the next. Education is the process of learning and knowing, which is not restricted to our school text books. It's a holistic process and continues through our life. Even the regular things and events around us educate us, in one or the other way. It would not be an exaggeration to say that the existences of human beings are fruitless without education. "Education is supposed to develop an integrated human being and to prepare young people to perform useful functions for society and to take part in collective life. But when the society is changing from day to day it is difficult to know to prepare and what to aim for it"

According to Aristotle, "Education is the process of training man to fulfil his aim by exercising all the facilities to the fullest as a member of society."

1.1.1 Educational Technology

Educational technology, in terms of terminology and structural composition may carry out two basic components, namely education and technology. Both of them have been in a continuous process of evolution. Technology refers to the techniques a systematic way of applying the techniques to achieve an objective is as important as the use of technical equipment for the same. As a matter of fact, techniques are referred as the software and the equipments as the hardware of technology. Technology results in

new designs and devices as also new ideas and processes. Each new physical device is accompanied by a new set of procedures and techniques.

Education, the act or process of acquiring and imparting knowledge, is essential in the overall development of learner with a view to his participation in the transformation of the world for a better tomorrow. According to Educational Communications and Technology, USA:- “Educational technology is a complex, integrated process involving people, procedures, ideas, devices and organizations for analyzing problems, devising, implementing, evaluating and managing solutions to these problems involved in all aspects of learning.”

1.1.2 Computers as Aid in Teaching

Computer has an impact on Students’ learning. A positive attitude of Student helps to enhance Students’ creativity, to set goals and help them to achieve the success they desire (good grades, their college degree, etc). Maintaining a positive attitude is an essential ingredient that enables one to keep on and achieving success. Technological progress and advancement compel us to be in touch with the application and operation of computers to cope with the existing requirements. So, Students’ must be provided with the need of the society and they must know the application of information technology especially using computers in their lives. In nutshell, use of the computer in education, imparts the way for an easy, faster and convenient learning and teaching.

Computers have changed the face of society. They are no longer specialized tools to be used. As computers are a daily utility, they have gained immense importance in day to day life. Their increasing utility has made computer education the need of the day. Computers are not only storage devices and processing units but also are excellent communication media. They are the means to access the Internet and get connected to the people all around the world. They are also an effective audio-visual media.

1.1.3 Information and Communication Technology

The use of information and communication technology (ICT) has become widespread our society is increasingly connected with rapid advance of ICT in homes, school and business. It uses millions of blogs, social networking sites, web pages and interactive online games. Consequently the number of Students’ use teaching aids, like charts models etc. it is a known fact that majority of schools do not have any

appropriate teaching aids related to schools content. So Students' have no facility to use Audio-Visual Aids during teaching.

The use of audio-Visual Aids get further restricted due to unmotivated persons becoming Students'. The central government realized the need of improving quality of education through the use of television where in most competent Student teaches the topic with the help of most appropriate teaching aids. This helped in improving the quality of teaching in schools having no Student to teach the subject, less competent Students'.

1.1.4 Functions of Information and Communication Technology

Now a day the role of information and Communication Technology (ICT), in the education sector plays important role, especially in the process of empowering the technology into the educational activity. Educational sector can be the most effective sector to anticipate and eliminate the negative impact of ICT. Technology in another side can be the most effective way to increase the student's knowledge. The use of ICT in education adds value to teaching and learning. After the inception of ICT in schools, Students' found learning in a technology enhanced environment more stimulating and engaging than in a traditional classroom environment.

One of the main aims of ICT is to help Students' to become competent and confident users who can use the basic knowledge and skills acquired to assist them in their daily lives. Social objective of ICT is to facilitate good communication between the Students', thus promoting better social understanding. ICT aims to assist Students' to appreciate the beauty and diversity of culture. It also aims to help Students' become well-cultured citizens of modern world. It achieves this as it facilitates the discovery and appreciation of various cultural heritages of different countries around the world. ICT aims to assist Students' to grow personally by facilitating different methods of learning. Distance-learning programs are now provided by most colleges and universities. Many people are using these programs to get degrees that would not have been able to receive without ICT. It also aims to allow the public to easily access the necessary information over the Internet.

1.1.5 Application of ICT in Different Education

1.1.5.1 Education

There is a big scope of using ICT in schools. Educational software and computer assisted instruction material are used in many schools to teach the Students' or to make them do self-study. Internet is a very useful way of enhancing knowledge of the

Students' and the Students'. The Student can prepare his own multimedia presentation program through the computer to teach the Students'. ICT made the use of EDUSAT possible.

1.1.5.2 Training

Computer Based Training (CBT) program is used in the industries to create virtual reality to train the workers in the large and medium scale industries. Simulated training can also be given to the workers of other employees, with the help of ICT in industries and in other training institutions.

1.2 Background of the Study

In the current digital age, computer education has become a fundamental component of the school curriculum across the globe. With the rapid advancement in information and communication technology (ICT), it is imperative for Students' to develop digital literacy skills from an early stage. Secondary schools play a pivotal role in shaping the attitudes and perceptions of Students' towards computers, which in turn influences their academic growth, career choices, and adaptability to future technological environments.

Despite the inclusion of computer studies in school syllabi, Students'' attitudes towards this subject vary based on factors such as availability of resources, teaching quality, socio-economic background, gender, and prior exposure to technology. Positive attitudes can enhance learning outcomes and encourage further interest in ICT-related fields, while negative attitudes may hinder technological adaptation and limit career opportunities.

This study aims to explore and analyze the attitudes of secondary school Students' toward computer education, identify influencing factors, and suggest strategies to foster a more engaging and inclusive computer learning environment.

1.3 Need and Significance of the Study

The outcome of this study aims at determining whether or not the use of computers has any significant influence on the attitude and interest of Students' in secondary schools. More over education is the bedrock of any society. India as a developing nation needs standard secondary schools that have available learning resources, that Student can improvise learning resources easily and more often. Students' utilize computer learning resources on a regular basis. This research will be a contribution to the body of literature in the area of the effect of personality trait on Student's interest

and attitude, thereby constituting the empirical literature for future research in the subject area.

1.4 Statement of the Problem

“A Study on Attitude of Secondary School teachers towards Information and Communication Technology (ICT) and the use of Computers in Education”

1.5 Definitions of the Key Terms

1.5.1.1 Attitude

Attitude is a psychological construct, a mental and emotional entity that inherence in, or characterizes a person.

1.5.1.2 Computer

A computer is a device that can be instructed to carry out arbitrary sequences of arithmetic or logical operations automatically.

1.5.1.3 Secondary School

A secondary school is both an organization that provides secondary education and the building where this takes place.

1.6 Objectives of the Study

The purpose of the study is to examine the attitude towards use of computers of secondary school Students’.

1. To study the Role of Information and Communication Technology (ICT) and used it in Computer education of Secondary School Students.
2. To compare the students’ attitude towards computer education on the basis of gender.
3. To study the students’ attitude towards computer education in Government and Private senior secondary schools.
4. To compare the students’ attitude towards computer education on the basis of medium of instruction of the school.

1.7 Hypothesis of the Study

To achieve the above objectives the following hypotheses have been formulated.

1. There is no significant difference between the attitude of male and female towards computer education and ICT.
 2. There is no significant difference between students’ attitude towards computer education and ICT in Private and Government senior secondary schools.
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3. There is no significant difference between Hindi and English medium students' attitude towards computer education and ICT.

2. REVIEW OF THE RELATED LITERATURE

Semerci & Aydan (2018) employed “a non-experimental descriptive survey design to find the attitude of High School Students’ towards ICT use in education”. The investigators used a self-constructed tool for collecting data from 353 Students’ teaching at the secondary stage. To analyze the data descriptive statistics were used. The positive overall attitude towards ICT use in education was found among Students’.

Tyagi and Imrana (2017) examined “the attitude of secondary Students’ towards Information and communication technology in relation to their gender”. female Students’ have favorable attitude toward ICT than the male Students’.

Suniya (2017) studied “The Attitude of Secondary School Students’ towards Information and Communication Technology (ICT) in School of Arunachal Pradesh in relation to the gender”. Male instructors had increasingly great demeanor towards the utilization of innovations in the school than their counterparts.

Bindu (2017) conducted on attitude towards, and awareness of using ICT classrooms: a case study of expatriate Indian Students’ in UAE. It explores awareness of and attitude towards, using ICT in teaching by Indian Students’ in UAE based on their gender and age. The findings of the study through the analysis of both quantitative and qualitative data reveal that Students’ have a positive attitude towards using ICT irrespective of their gender and age. It suggests that ICT use of educational purposes should be given. Greater consideration then it currently receives. The results were consistent with ICT awareness of Students’ is at the average level and is influenced by their gender and age.

Manikandan and Dhanalakshmi (2017) conducted study on awareness on educational websites among Student educators. This study aimed to analyse the Student educational institution level. It was investigated on government, government aided, and selffinancing Student educational institutions. The questionnaire was constructed by researcher. The descriptive and inferential method has been used for this study. The study revealed that there is a significant difference between management of the institutional level. The educational websites awareness of government, government aided student Students’ higher then self-financing student Students’.

Kumar (2016) conducted awareness, knowledge, attitude and skills of telemedicine among health professional faculty working in teaching hospitals. The main objective of the study was to assess the awareness, knowledge, attitude and skills of telemedicine among the health professionals working in the teaching hospitals of Puducherry Region of India. A pre-validated self-administered questionnaire was used for the survey to study . The questionnaires were analysed as per the study objectives using descriptive statistics for the quantitative data and content analysis for the qualitative data. Findings although the respondents experience and knowledge are limited in telemedicine technology a fair number of them have positive attitude towards telemedicine.

Ganesan and Krishnakumar (2016) conducted on attitude of Student educators towards ICT. In this study examined the difference between Student educators' attitude towards ICT and their level of attitude. The participants were the Student educators of Colleges of Education in Coimbatore, South India. Cluster Sampling was adopted. Results indicated significant difference in their attitude with respect to their locality of home. Majority of Student educators have favourable attitude.

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Fanai (2016) examined "a study of Attitude of the secondary school Students' towards ICT with respect to teaching experience and professional qualification". Inspirational disposition towards ICT was discovered futher no distinction was found.

Shafaq & Imran (2016) examined "Student's attitude towards the use of Information and Computer Technology with special reference to gender and teaching experience". The results showed that less experienced Students' have more knowledge and show a more favorable attitude towards ICT than more experienced Students'.

Mustafina (2016) explored the "Mixed method to study Students' attitudes towards technology integration in a Secondary School with reference to age and gender." The investigator also concluded that factors like age and gender were having a direct effect on Students' attitude towards ICT..

Yadav (2015) examined “Attitude of male and female secondary school Students’ towards the use of information communication technology in Education”. The examination exposed that female educators feel great in utilizing technological pedagogy in their classrooms than the male instructors.

Anantha Raj A. Arokiasamy, Abdul GhaniKanesan bin Abdullah, Aziah Ismail.,(2015) found correlation between cultural perceptions, leadership style and ICT usage by school principals in Malaysia. Findings indicate that school principals are using computers for instructional and administrative purposes and they have moderate competency in computer applications and spent a few times a week working on their computers.

Dhanavandan, Esmail and Mani (2015) conducted study on Awareness of Information and Communication Technology (ICT) tools among library professionals in Tamil Nadu. An attempt has been made in this study to identify usage of Information Communication Tool among the library professionals in Tamil Nadu. Nearly 175 questionnaires were distributed among the library professionals in Tamil Nadu. Nearly 170 responses were received. It is found that all the respondents are using in one-way or the other various types of ICT Media tools.

3. RESEARCH METHODOLOGY

3.1 Introduction

The present study employed a descriptive research methodology to examine the attitudes of secondary school students toward Information and Communication Technology (ICT) and the use of computers in education. The methodology was selected because it enables the researcher to describe existing conditions, analyze relationships among variables, and interpret findings objectively.

3.2 Research Design

The study adopted a descriptive research design. Descriptive research is appropriate for studies that aim to describe the existing characteristics, attitudes, opinions, or behaviors of a population without manipulating any variables. It allows the researcher to collect quantitative information through standardized instruments and analyze the collected data using appropriate statistical techniques. The study examined students' attitudes toward ICT and computer education using the **CAS-KS Attitude Scale** developed by **Dr. (Mrs.) Tahira Khatoon and Manika Sharma**. The research design enabled comparisons of students' attitudes across different demographic categories.

Independent Variables

- Gender
- Type of School (Government/Private)
- Medium of School (Hindi/English)

Dependent Variable

- Attitude toward Computer Education
- Information and Communication Technology ICT

3.3 Population of the Study

The accessible population included students from eight secondary schools, representing both government and private institutions with Hindi and English as the medium of instruction. The total population selected for the study comprised 100 students in Lucknow district.

3.4 Sample and Sampling Technique

The present study employed purposive sampling along with random sampling techniques for selecting participants. A total of 100 secondary school students were selected from eight schools in Lucknow district.

Distribution of the Sample

School Type	Medium	No. of Student
Government Schools	Hindi & English	50
Private Schools	Hindi & English	50
Total		100

The sample included students from the following institutions:

- Government Inter College, Aminabad
- Government Girls Inter College, Aliganj
- Rajkiya Balika Inter College, Rajajipuram
- Government Inter College, Mahanagar
- City Montessori School, Gomti Nagar
- La Martinière Girls' College
- Saraswati Vidya Mandir, Indira Nagar
- Children's Academy, Alambagh

Among the respondents, 70 were male students and 30 were female students.

3.5 Research Instrument

The study used the **CAS-KS Attitude Scale**, developed by **Dr. (Mrs.) Tahira Khatoon and Manika Sharma**, to measure students' attitudes toward Information Technology.

The scale consists of 30 statements, including:

- 18 positive statements
- 12 negative statements

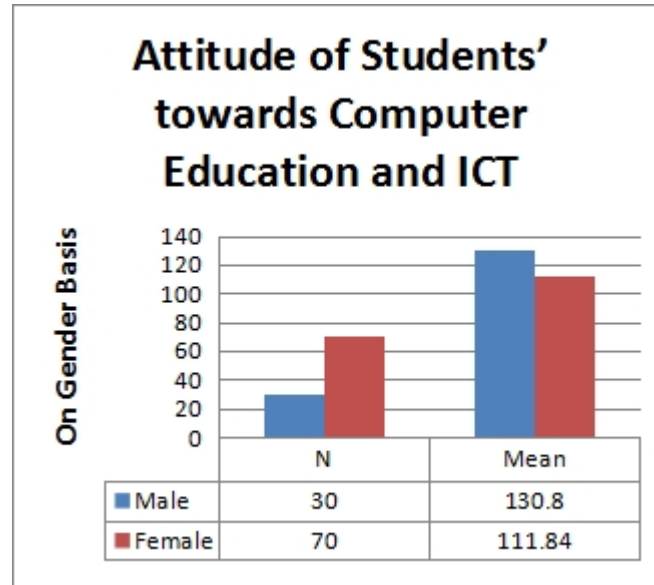
4. DATA ANALYSIS AND INTERPRETATION

Hypothesis-1 There is no significant difference between the attitude of male and female towards computer education and ICT.

Table-1

Gender	N	Mean	Std. Deviation	Obtained t-value
Male	30	130.80	14.656	6.683
Female	70	111.84	12.236	

Graph 1



Interpretation: The above table shows the Mean and SD of male and female of secondary school which is 130.80 and 14.656 respectively and 111.84 and 12.236

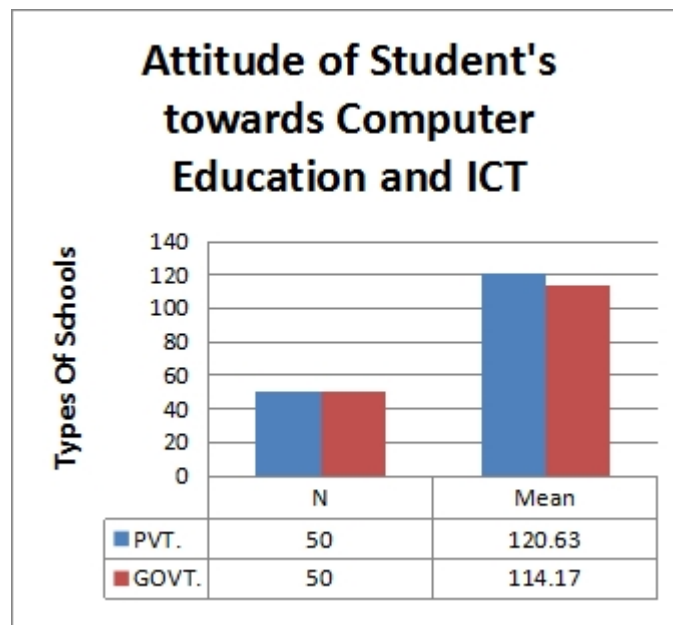
respectively the calculated T value is 6.683 at df 98 which is greater than the tabulated value i.e.1.96 at 0.05 level of significance. This reveals that there is significance difference in attitude of male and female Students' towards Computer Education and ICT. The hypothesis "There is no significant difference between attitude towards Computer Education of male and female secondary schools Students'." **is rejected**. As male Students' been lesser in number shows higher attitude towards use of computers and are keen in gaining knowledge through technology, while female Students' shows lesser attitude towards use of computer and starts to panic and become anxious and are lesser inclined towards gaining knowledge through Computer Education.

Hypothesis 2-There is no significant difference between students' attitude towards computer education and ICT in Private and Government senior secondary school.

Table 2. Attitude of Students' on the basis of Types of School

Types of School	N	Mean	Std. Deviation	Obtained t-value
PVT.	50	120.63	11.827	2.106
GOVT.	50	114.17	18.409	

Graph 2



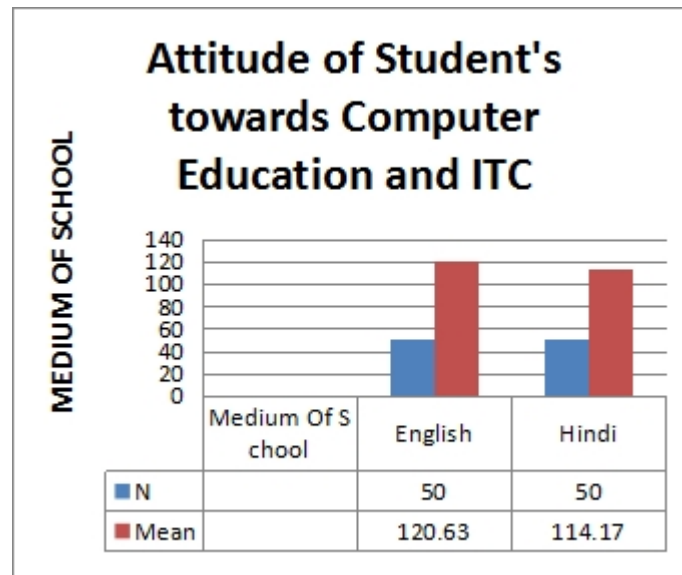
Interpretation: The above table shows the Mean and SD of private and government secondary school which is 120.63 and 11.827 respectively and 114.17 and 18.409 respectively the calculated T value is 2.106 at df 98 which is greater than the tabulated value i.e.1.96 at 0.05 level of significance. This reveals that there is significance different in attitude of private and government Students' towards Computer Education. The hypothesis "There is no significant difference between attitude towards Computer Education of Private and Government secondary schools Students'." **is rejected**. As private schools provide better environment and have made technological advancements by using smart classrooms to help Students' to enhance their knowledge as well for better understanding while in Government schools no such facilities are provided some schools didn't have proper computer rooms.

Hypothesis 3: There is no significant difference between English and Hindi medium students' attitude towards computer education.

Table 3. Attitude of Students' on the basis of Medium of instruction of School.

Medium of School	N	Mean	Std. Deviation	t-value (calculated) df is 98.
English	50	120.63	11.827	2.106
Hindi	50	114.17	18.409	

Graph 3



Interpretation: The above table shows the Mean and SD of English and Hindi medium secondary school which are 120.63 and 11.827 respectively and 114.17 and 18.409 respectively the calculated T value is 2.106 at df 98 which is greater than the tabulated value i.e.1.96 at 0.05 level of significance. This reveals that there is significance different in attitude of English and Hindi medium Students' towards Computer Education. The hypothesis "There is no significant difference between attitude towards Computer Education of English and Hindi medium secondary schools Students'." Is rejected maximum of English medium schools have a basic guideline that enables every Student to be well equipped in computer working and proficiency while on the other hand Hindi medium schools are lesser focused on the use of computers as well as technology.

5.3 Findings

For the present study the major findings of the study are:

1. **As per the first objective:** To study the attitude towards computer education of male and female secondary schools students' the result drawn are as:-
 - There is a significant difference found between the mean of attitude score towards computer education in education of male and female secondary school Student's.
 - The mean of attitude score shows that male have higher attitude towards computer education in education in respect to females.
2. **As per the second objective:** To study the students' attitude towards computer education in Government and Private senior secondary schools the result drawn are as:
 - There is a significant difference found between the mean of attitude score towards computer education of Government and private secondary school Student's.
 - Majority of government female Students' found that the use of computer in teaching and learning stresses them out in respect to private school female Students'.
 - There were few Students' in private school who knows how to fix something in computer if anything goes wrong while government Students' were not well equipped and may panic.

- Private schools Students' were fully equipped as to perform task using computers as they teach by the help of smart classroom while in government Students' it lacks as the school doesn't have a proper computer lab.
- 3. **As per the third objective:** To study the attitude towards computer education of English and Hindi medium secondary schools Students' the result drawn are:-
 - There is a significant difference found between the mean of attitude score towards computer education of Hindi and English medium secondary school Student.
 - Majority of Hindi medium Students' found that the use of computer in teaching and learning stresses them out in respect to English medium school Student's due to language barrier.
 - Students' of English medium school knows how to fix something in computer if anything goes wrong while Hindi medium school Students were not well equipped and starts to panic.

5.5 Suggestions for Further Researches

- Studies on the Attitude of Student's can be extended to particular subject Students'.
- Studies on the Attitude of Student's can be extended to other educational levels like graduation and post-graduation.
- A study can be carried out to find the attitude of Students' towards computer education.
- A study can be carried out to find the Attitude of Student's towards different technology like mobile learning, smart classes, etc.
- Studies on the Attitude of Student's can be extended to primary and pre-primary level.
- A study can be carried out on the Attitude of Student's towards computer education and technology on the academic achievement of the Students'.
- A study can be carried out on the self-efficiency of the Students' on the use of computers and Information and Communication Technology.

5.6 Suggestions for Teachers

- Integrate computer use across subjects, not just in computer education classes.
 - Promote equal access to computer labs for both boys and girls.
 - Encourage hands-on learning and project-based computer activities.
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- Create a fear-free environment where students feel comfortable experimenting with technology.
- Use peer learning—assign tech-savvy students to help others.
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