International Journal of Advanced Educational Research
www.educationjournal.org
ISSN: 2455-6157
Received: 16-09-2022, Accepted: 03-10-2022, Published: 20-10-2022
Volume 7, Issue 2, 2022, Page No. 114-119

Relationship between ICT skills and academic achievement of the higher secondary students in Madurai district

Dr. M Soundararajan[1], K Balasubramanian[2]
[1] Tamil Nadu Teachers Education University, Chennai, Tamil Nadu, India
[2] Research Scholar, Department of Value Education, TNTEU, Chennai, Tamil Nadu, India

Abstract
ICT skills are required by all businesses and educators in today's world. Information and Communication technology (ICT) has the potential to transform teaching and learning processes. According to a recent study in OECD countries, students are more sophisticated in their use of technology than teachers; an inherent discrepancy between student knowledge and usage of ICTs with the abilities of teacher to use ICTs.
The key goal of the present study aims to find out significant relationship between ICT skills and academic achievement of the higher secondary students in Madurai District. The present study advocated with the survey method. For selecting the sample Stratified random sampling method was adapted.220 higher secondary schools students form Madurai district were selected.

Keywords: ICT skills, academic achievement and higher secondary school students

Introduction

Origin of ICT

Almost a century ago a spate of invention ushered in the first industrial revolution, within a short span of time, many countries became industrialized. Now we are in the beginning of another industrial revolution. The major cause of the second industrial revolution is the invention of computer. Man has invented many electronic devices but computer has made a greater impact on society than any other single device. They are so versatile that they have become indispensable to engineers, scientists, business executives, managers, administrators, accountants, teachers and students. They have strengthened man's powers in numerical computations and information processing and thereby increased the effectiveness of organizations. Education and educational institutions is some field that which are mostly influenced by the computers.

Component of ICT

The components can be divided into two categories.
a. Hardware components
b. Software components

A. Hardware components

The term hardware is applied to any of the physical equipments in a system, usually containing electronic components and performing some kind of function in information processing. The input devices, output devices and computer peripherals are some of the examples of hardware components.

B. Software components

Software is an application of ICT. One of the major components of ICT is Internet.

Internet

Internet is a group of two or more networks that are inter connected physically, capable of communication and sharing data with each other and able to act together as a single network.
Internet is also called information super highway machines on one network communication with machines on another network and send data files and other information back and forth. The internet offers access to data, graphics, sound, software, text and people through a variety of services and tools for communication and data exchange. Internet is the cheapest and fastest means to get information, provide information and compile information.

1. E-mail

The short form for electronic mail is e-mail (or email) one of the significant applications of internet is electronic mailing. It is believed that the first e-mail message was sent in 1971 by an engineer named Ray Tomlinson. On

the Internet, using the @ sign to designate the receiving machine. In the beginning and even today e-mail message tend to be short pieces of text, although the ability to add attachments now makes many e-mail message quite long.

2. World Wide Web

A web is a collection of web sites and the Internet is a network of network. World Wide Web is nothing but the collection of web sites are linked together somewhat like the strands of a spider web. All through the bare distractive meaning the two words "Web" and "Internet" are often casually interchangeably. The World Wide Web consists of files, called pages or web pages, containing information and links to resources throughout the internet. The World Wide Web is of abbreviated as the web or www.

3. E-Learning

An innovative application of computer in the teaching and learning process is e-learning. E-learning may be Network-based, Intranet-based or Internet based, which includes text, video, audio animation and virtual environments.

4. Electronic journals

The journals which are web based and available online are known as e-journals. These e-journals have been considered to be one of the significant applications of computer in the field of education. Journals tend to come from two sources. Commercial publishers and titles published by associations and society. There are varieties of access-levels, title availability and pricing mechanisms.

5. Multimedia

Multimedia is one of the fastest growing and most exciting areas in the information and communication technology (ICT). Hundreds and thousands of people are putting together text, pictures, animations, movies and sound to create multimedia presentation, course and interactive web pages and so on. Multimedia is widely used in the entertainment and educational fields.

6. Virtual Reality (VR)

It is described as being a set of technical projects and an utopian concept, Virtual reality appears to be a contradiction. The work 'Virtual' suggests some sense of unreality while the word reality speaks for itself. VR is seen as an environment or a world which is perceived as real, though in theory, we diagnose it as being unreal.

7. Hypermedia

Hypermedia is a network containing several interlinked information units. The information units are called nodes and the connections between the modes are called linkes. Limited networks of nodes and links are called hyper document. Sensitive to link sports. Changing its shape when on a link spot.

8. FTP-(File Transfer Protocol)

It is the protocol saver principle a client program enables the user to interact with a server in order to access information and services on the server computer.

ICT for Students

The rapid technological development means that knowledge is no longer a "once in a life time" experiences for the individual. It is rather an asset, which constantly has to be updated. Therefore, the crucial new factor in connection with the information society is that students are to be qualified creatively to sort, select, process and use to get amount of information. Which ICT gives access to moreover, in connection with the basic education they are to acquire new method of learning processes in order to enable them to take a material responsibility for a continual and lifelong updating their qualifications.

Significance of the Study

As we live in the world of competition we need to acquire adequate knowledge about computer and its uses in the field of education. Ours is an information age, where information and communication technology has revolutionized education. Today one cannot be ignorant about the impact of information and communication technology. Information and communication technology helps the students to appreciate and adopt emerging communication technology and innovative practices. It provides guidance for the developmental of a high

quality strategies technology plan. It enables the students to update the new knowledge and the skill used to the new digital tools and resources. Improving the quality of education through diversification of contents and methods and promoting experimentation, innovation and sharing of information are UNESCO's strategic objectives in education. So the students must have the skills of using ICT, further the HIGHER SECONDARY STUDENTS standard can acquire the knowledge of ICT so that they can become effective students.

Academic Achievement

Academic achievement has been the criterion for judging the individual right from the start of formal education. If the goal of education is enhancing the academic achievement of the individual, the researchers will have empirically to find answer to various questions related to academic achievement (K. Balasubramanian). The variables studied in this area as correlates of academic achievement are large in number. Academic achievement refers to how the students perform in the examination and how much marks he gets from the examination etc. The total marks earned by the students are the academic achievement of the student.

Factor of Academic Achievement

Achievement is the end product of all educational endear. In the opinion of bunch, the whole system of education are many ours educational researchers Dave studied centered on academic achievement of students, the factors that facilitate and retard achievement in students,

Statement of the Problem

Relationship between ICT Skills and Academic Achievement of the Higher Secondary Students Standard Students in Madurai District.

Oprational Definition

1. Relationship

It means a connection or a link between two or more factors. Hence by relationship the investigator means an association between ICT skills and academic achievement.

2. Information and communication technology

It is the scientific and technological discipline which deals with collection, storing and dissemination of information to the individuals.

3. Academic Achievement

Academic achievement is nothing but educational attainment which refers to the gains got by the pupils as a result of education. Verbal and numerical ability of an individual is referred to as one's academic achievement. This achievement in the subjects that is the total achievement is called academic achievement.

4. Higher Secondary Students Standard Students

It refers to the students studying in first year +2 students in higher secondary student's schools.

5. Madurai

It refers to one of the educational districts in the revenue district of Pudukottai in Tamil Nadu.

Methodology

The present study was advocated with survey method of research.220 students of higher secondary schools of Madurai district were selected as a sample. Stratified Random sampling method was adapted to find out the significant relationship between ICT skills and Academic Achievement among school students.

Objectives

- To find out the significant difference between ICT Skills and Academic Achievement among Higher Secondary Students with respect to type of schools.
- To find out the significant difference between ICT Skills and Academic Achievement among Higher Secondary Students with respect to nature of school.
- To find out the significant difference between ICT Skills and Academic Achievement among Higher Secondary Students with respect to its dimensions.

Hypotheses

- There is no significant difference between male and female higher secondary students in ICT Skills and its dimensions.
- There is no significant difference in ICT skills and its dimensions among higher secondary students with respect to type of school.
- There is no significant difference in ICT skills and its dimensions among higher secondary students in terms of nature of school.

Hypothesis: 1
There is no significant difference between male and female higher secondary students in ICT Skills and its dimensions.

Table 2: Significant Difference between Male and Female Higher Secondary Students in ICT Skills and ITS Dimensions

Dimensions	Variables	Count	Mean	S. D	't'-value	Remarks
Enthusiasm	Male	106	1.50	0.50	6.36	S
	Female	114	1.14	0.34		
Anxiety	Male	106	1.34	0.51	6.27	S
	Female	114	0.97	0.33		
Acceptance	Male	106	2.79	0.55	6.94	S
	Female	114	2.26	0.59		
E-mail	Male	106	3.56	0.67	8.50	S
	Female	114	2.75	0.73		
Productivity	Male	106	3.32	0.73	3.05	S
	Female	114	3.05	0.56		
Confidence	Male	106	4.19	0.68	2.36	S
	Female	114	3.51	2.88		
Relevance	Male	106	4.00	1.05	5.26	S
	Female	114	3.23	1.11		
ICT skills in Total	Male	106	20.73	2.36	9.21	S
	Female	114	16.93	3.57		

Table value at 5% level of significance is 1.96

It is inferred from the above table that there is significant difference between male and female higher secondary student's standard students in ICT skills in total and its dimensions Enthusiasm, Anxiety, Acceptance, E-mail, Productivity, Confidence, and Relevance.
Table value at 5% level of significance is 1.96 is the table value is less than the calculated value. Hence the hypothesis is rejected.

Hypothesis: 2
There is no significant difference in ICT skills and its dimensions among higher secondary students with respect to type of school.

Table 2: Significant Difference in ICT Skills and Its Dimensions among Higher Secondary Students In Terms of Type of School

Dimensions	Source of variation	Sum of squares	df	Mean square	'F' value	Remarks
Enthusiasm	Between	4.421	2	2.210	11.076	S
	within	43.306	217	.200		
Anxiety	Between	2.361	2	1.180	5.606	S
	within	45.689	217	.211		
Acceptance	Between	1.632	2	.816	2.125	NS
	within	83.296	217	.384		
E-mail	Between	3.828	2	1.914	2.935	NS
	within	141.518	217	.652		
Productivity	Between	0.133	2	.067	0.150	S
	within	96.594	217	.445		
Confidence	Between	4.144	2	2.072	0.444	S
	within	1012.601	217	4.666		
Relevance	Between	9.185	2	4.592	3.544	NS
	within	281.197	217	1.296		
ICT skills in Total	Between	83.211	2	41.606	3.293	NS
	within	2741.966	217	12.636		

Table value at 5% level of significance is 3.03

It is inferred from the above table that there is significant difference among higher standard students in ICT skills in total and its dimensions such as Enthusiasm, Anxiety secondary studentsety, Relevance and ICT skills in Total in terms of type of college. Since, the calculated values are greater than the table value (3.03) at 5% level of significance.

Hypothesis: 3

There is no significant difference in ICT skills and its dimensions among higher secondary students in terms of nature of school.

Table 3: Significant Difference in ICT Skills and ITS Dimensions among Higher Secondary Students Standard Students in Terms of Nature of School

Dimensions	Source of variation	Sum of squares	df	Mean square	'F' value	Remarks
Enthusiasm	Between	10.912	2	5.456	32.160	S
	within	36.815	217	.170		
Anxiety	Between	5.681	2	2.841	14.549	S
	within	42.369	217	.195		
Acceptance	Between	9.219	2	4.610	13.212	S
	within	75.708	217	.349		
E-mail	Between	12.338	2	6.169	10.065	S
	within	133.007	217	.613		
Productivity	Between	7.641	2	3.821	9.307	S
	within	89.086	217	.411		
Confidence	Between	2.777	2	1.388	0.297	NS
	within	1013.969	217	4.673		
Relevance	Between	47.767	2	23.884	21.362	S
	within	242.615	217	1.118		
ICT skills in Total	Between	506.926	2	253.463	23.725	S
	within	2318.252	217	10.683		

Table value at 5% level of significance is 3.03

It is inferred from the above table that there is significant difference among higher secondary students in ICT skills in total and its dimensions such as Enthusiasm, A higher secondary students Acceptance, Relevance, E-mail, Productivity, relevance and ICT skills in Total in terms of nature of school. Since, the calculated values are greater than the table value (3.03) at 5% level of significance.

Finding and Interpertation

The results of this study show that there is a considerable difference in ICT skills between male and female higher secondary students across all dimensions, including enthusiasm, acceptance, e-mail, productivity, confidence, and relevance. In terms of overall ICT abilities and the dimensions Enthusiasm, Acceptance, E-mail, Productivity, Confidence, and Relevance, male students outperform female students. Male students, on average, have more exposure and interest than female students. The dimension Anxiety, on the other hand, shows no significant differences. As a result, both males and females have similar knowledge.

The findings of this study demonstrate that there is a substantial different in total ICT skills and its features such as enthusiasm, anxiety secondary students, relevance, and overall ICT skills among higher standard students, depending on the type of institution. In comparison to pupils at aided and government schools, students in self-financing schools have better ICT skills. Self-fiance school, for example, has stronger infrastructure, a well-equipped lab, and a sufficient Wi-Fi and internet. There is no significant difference between higher secondary students in terms of overall ICT ability and elements such as Acceptance. E-mail, productivity, and relevancy are all key factors in the type of college you attend. Acceptance, government, aided, and self-finance school pupils have the same ICT skill in all dimensions.

Recommendations

ICT skills must be taught in school to students in the higher secondary student's Standard. The following are some of the suggested recommendations:

1. For higher secondary student's standard pupils, more ICT Skills training should be provided.
2. Teachers must be encouraged to employ ICT skills in the teaching-learning process by schools.
3. ICT facilities must be built into all aspects of schooling.
4. They should have ICT teachers who are experienced and knowledgeable.
5. An integrated ICT programme for students in the higher secondary student's standard may be organized.
6. For higher secondary student's standard students, ICT related seminars, workshops, and symposiums may be arranged in addition to regular curriculum activities.
7. More ICT books for libraries could be obtained, and higher secondary student's pupils could be allowed to utilize them correctly and regularly.
8. Higher schools may have a well-equipped computer library, and students may be permitted to use computers at their leisure.

Suggestions for Future Research

The current research is limited to examining the association between ICT capabilities and academic accomplishment among higher secondary student's standard students in the Madurai district. A similar study could be conducted in other Tamil Nadu districts as well as other Indian states.

1. The same research might be used to secondary teacher educators.
2. A comparable study might be conducted with students from high school, higher education, art and science, or engineering colleges.
3. Doctors, attorneys, and engineers can all benefit from the same research.
4. The same research can be done with B.Ed. and M.Ed. students.
5. A study of the impact of information and communication technology abilities on students and teachers in the higher secondary student's standard.

Conclusion

ICT will improve the educator's ability to use innovative and student-centred learning approaches and develop appropriate assessment to move their learners forward in their use of ICT. ICT will enhance the participant's ability to reduce low achievement of their pupils and students in ICT at the same time developing their pupils' critical thinking when using ICT. The participants will be able to develop lessons for diverse learners – learners with special needs to high achievers by improving their own confidence to offer IT support. Participants will become a confident user of ICT across a range of Medias and applications.

References

1. Balasubramanian K. "Relationship Between Social Maturity and Achievement in Social Science" Shodhsamhitha,2021-2022:8(2):99-105. ISSN-2277-7067.
2. Ala-Mutka K, Punie Y, Redecker C. ICT for Learning, Innovation and Creativity. European Commission (Institute for Prospective Technological Studies), 2008. Available at: http://ftp.jrc.es/EURdoc/JRC48707.TN.pdfBadali,
3. M Dana-Mazra'e A, Farokhi-Tirandaz S, Herfeh-Doost M. The Impacts of Using Electronic Portfolio in Students' Creativity.Innovation and Creativity in Humanities,2013:3(12):45-68.
4. Banihashem K, Farokhi-Tirandaz S, Shahalizadeh M, Mashhadi M. Study of the impact of E-learning on University Students' Creativity,Media Electronic Learning Magazine,2014:5(4):53-61.
5. Truman S. A generative framework for creative learning: A tool for Planning Creative-Collaborative Tasks in the Classroom. Transnational Working Papers,2011:1101:1-14.
6. Wantling TL, Weight C, Gallaher JLA, Fleur J, Wang C, Confer A. E-Learning: A Review of Literature' Knowledge and Learning Systems Group, university of Illinois, 2000.
7. Urbana Champaign, Wheeler S, Waiter SJ, Bromfield C. Promoting Creative Thinking through the Use of ICT.Journal of Computer Assisted Learning, Wiley online Library,2002(18):367-378.
8. Zanganeh H, Moosavi R, Badali M. The Effect of Using Information and Communication Technologies in Cultivation of Creative Thinking. Innovation and Creativity in Humanities,2013:3(10):39-60.
9. Zare M, Sarikhani R, Sarikhani E, Babazadeh M. The Effects of Multimedia Education on learning and Retention in a Physiology Course. Media Electronic Learning Magazine,2015:6(1):32-38.
10. Zarei –Zavaraki E, Rezaei I. The Impact of Using Electronic Portfolio on Attitude, Motivation, and Educational Progress of Students' Khaje Nasir Toosi University. Educational Measurement periodical,2011:2(5):67-96.