



Computer self-efficacy, computer anxiety and students' satisfaction on use of ICT for sustainability in higher education

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Abstract

Modern age is the age of science and technology. Information and communication technology (ICT) plays an important role in the process of education. ICT implies use of computer, mobile, various apps, software etc. It is very helpful in making teaching learning process more effective. Higher education comes under final stage of formal education. It gives emphasis on optimum use of human resources. Higher education is necessary for the development of creativity, critical thinking, problem solving abilities, decision making skills of the students. Now a days ICT become an integral part of higher education. ICT is not only related with making teaching learning more interesting and meaningful but also related with developing research and scientific attitude of the students. ICT is very helpful to enhance and upgrade the quality of higher education. Hence, present paper is an attempt on surveying the ICT use status of learners in higher education. Accordingly, objectives of the study are undertaken as to study the computer anxiety of students, self efficacy on use of ICT for sustainability and satisfaction level on use of ICT for sustainability in higher education. Descriptive survey method is used in the present study. A questionnaire is developed by the investigator for data collection. 50 samples are collected from different higher educational institutions. Findings of the study reveal 29% of the students falls under the High level and 55% falls under the average level and 16 % students fall under low level regarding use of ICT for learning. That means most of the students use ICT for their learning process.

Keywords: ICT, sustainability, students, higher education

Introduction

Modern age is dominating by science and technology. Technology plays a significant role in every aspect of a human life. From day to night in our daily life we are totally dependent upon technology. In the field of education also technology plays an important role. When technology is used in the field of education then it is called educational technology. Computer self-efficacy is an individual's belief regarding his/her ability to utilize computer gadget, and plays a positive, significant role in making decisions involving computer adoption and usage (Papastergiou, 2010). It is referred to as an individual's self-evaluation, self-confidence or personal assessment in one's ability to use a computer for a variety of tasks (Tsai, Chuang and Tsai, 2011; Hauser, Paul, Bradley and Jeffrey, 2012; Hsiao, Tu and Chung, 2012; Celik and Yesilyurt, 2013). Hsia, Chang and Tseng (2014) propounded that computer self-efficacy is perceived ease of use of computer to perform a task. These perceived ease of use of the computer is born out of the daily use of the gadget to perform specific task. However, individual's perception of computer self-efficacy in performing specific computer related task within the domain of general computing is associated with continuous training and intent to use computers (Chien, 2012; Karsten, Mitra and Schmidt, 2012).

ICT is the combination of information technology and communication technology. Information technology means use of technology to collect, store, manage and share various information. Communication technology implies use of technology to circulate information for communication purpose. UNDP (2000), defined ICT as a,

“diverse set of technological tools and resources used to communicate and to create, disseminate, store and manage information.” Now a days ICT has become indispensable part of human life. Use of ICT in the teaching learning process can increase attention motivation of the learners. Learners, who are considered as the main asset of a country reach the final stage of formal education in higher education level. Higher education level formally starts after completion of secondary education and end at PG level. It gives emphasis on optimum use of human resources. Higher education is necessary for the development of creativity, critical thinking, problem solving abilities, decision making skills of the students. So, ICT is very helpful to enhance and upgrade the quality of higher education. Self directed learning is necessary in higher education and it is only possible through the use of information and communication technology. Various products of ICT like teleconferencing, email, audio conferencing, television lessons etc. makes education accessible to all. Because of vast nature of using ICT, new education is becoming dynamic in nature. It changes with the changing needs of society and ICT can fulfil the various needs of society for sustainability. Use of ICT is enabling the educational institution transform them into paperless management system.

In this background, the study is conducted by the researcher to know computer anxiety, self efficacy and satisfaction level of higher education students so that they can use ICT effectively in every walk of students' life. Use of ICT in teaching learning process reduces wastes. It reduces paper work also which is directly beneficial to lead sustainability. Because students can submit their assignment through e-

mail or other educational apps. It leads to ICT for environmental Sustainability. With the emergence of various ICT tools the admission process of students also become online. For that students need not to be present physically in the colleges or universities. They can fill-up their admission form from their home. And it saves their transportation cost and their time and energy. It also leads to ICT for economic Sustainability.

Again, students in higher education use ICT for searching materials, seminar presentation, Group Discussion and for many other purposes. E-Book, E-Journal, E-Conference, Proceeding, Online Thesis, Dissertation, CDROMS, E-Resources Link, Online Current Awareness survey, etc, are various aspects in which students are familiar and bound to use computer in institutional level or at home. This may create anxiety in students' mind for many times and ultimately their academic performance may be affected at different times. So, it needs attention for researches from various perspectives.

Significance of the study

With all the changes of the society, the goals of education, teaching methods, curriculum etc. have also been changed. Now a day's importance is given to technology mediated instructions rather than traditional teaching methods. Emergence of ICT in teaching learning process makes the process more fruitful. ICT can solve various problems which occurred in the field of education. Hence present research is an attempt on surveying the ICT use status of learners in higher education.

Previous researches have shown that Computer self-efficacy has to do with student's confidence in his or her capabilities to do particular learning tasks with the help of computers (Hauser, Paul and Bradley, 2012; Wolverton, Hollier and Lanier, 2020). Another research finding reveals that Computer self-efficacy is positively related to attitude to computer use, and performance and negatively related to computer anxiety (Nwosu, Achukwu, Akuezilo and Uzoekwe, 2015). It refers that an individual having high computer self-efficacy is positively attuned to computer use and invariably spend more time in the use of computer. Although, there are still majority of them who lag behind in their confidence and/or desire to use computers and telecommunication gadget and in turn deficiency (Oladokun and Adeoye, 2022).

Computer anxiety can be defined as the inclination of an individual to have a negative reaction while considering computer usage (Simsek, 2011). According to Kannan, Muthumanickam and Chandrasekaran (2016), computer anxiety is a feeling of when an individual is afraid, uneasy to use computer. According to Wan-Husin, Thinakaran and Wan-Husin (2018), computer anxiety can be defined as an emotional response usually resulting from a fear of using the computer with negative experiences such as damaging the computer components or looking foolish. Computer anxiety is a substantial barrier influencing the use of computers ultimately influencing the academic activities of students (Oribhabor, 2020). Computer anxiety can be one of the major problems that affect the effective and efficient use of information resources by students in university. So, this gives ample scope to carry on research on Computer self-efficacy, computer anxiety and students' satisfaction level on use of ICT in higher educational institutions of Assam.

The results obtained from the study will help the students to know their self efficacy on use of ICT. It also helps students to know their computer anxiety and also help to overcome those anxiety. It also helps the students to know that use of ICT reduces pollution and other negative impact on environment. It will help them to understand the concept of sustainability and also allows them to use ICT for sustainability.

Objectives of the study

Present study is based on the following objectives-

1. To examine the level of computer self-efficacy of students in higher education.
2. To study the computer anxiety level of students.
3. To study the students' satisfaction level on use of ICT for sustainability in higher education.
4. To examine the relationship between computer self-efficacy and students' satisfaction level on use of ICT.
5. To examine the relationship between computer self-efficacy and computer anxiety level of students.
6. To examine the relationship between computer anxiety and students' satisfaction level on use of ICT

Hypotheses of the study:

Ho1: There is no significant relationship between computer self-efficacy and students' satisfaction level on use of ICT

Ho2: There is no significant relationship between computer self-efficacy and computer anxiety level of students

Ho3: There is no significant relationship between computer anxiety and students' satisfaction level on use of ICT

Operational definition of the key terms:

- **ICT:** ICT means use of various digital tools for sharing, storing, managing different information. ICT is very important for teaching learning process. Both teachers and students use ICT for finding, exploring various information. In present study ICT means use of computer, internet, use of various apps for educational applications etc.
- **Higher education students:** Higher Education is the final stage of formal education. Higher education is needed to develop critical thinking, creativity, decision making skill of a person. In present study higher education students implies all colleges or universities students who are pursuing post graduate courses.
- **Sustainability:** Sustainable development or sustainability is an approach through which we can fulfill our needs without compromising the needs of future generations. Through sustainability we can conserve our resources and environment. Sustainable development is an approach for economic development that gives emphasis on development of quality of life for all people. It focuses on conservation of natural resources and the environment for the future generation. According to Brundtland Our Common Future, 1987 report, "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Delimitation of the Study: The study has been delimited to only post graduate level students of 4 higher educational institutions of Assam.

Review of related literature

The studies on this area reviewed are briefly described below -

- Sayad, Alamri, Alqahatani and Al-Rahmi (2021) has conducted a study on Information and Communication Technology used in higher Education: An empirical Study on Digital Learning as Sustainability. The purpose of this research project was to investigate computer self-efficacy, computer anxiety, perceived enjoyment and acceptance of digital learning as Sustainability at Saudi Universities based on students’ satisfaction with actual ICT usages for digital learning as sustainability. The findings of this research project showed that there is a connection between computer self efficacy, computer anxiety, and perceived enjoyment, factors which all played a significant role in perceived usefulness and ease of use.
- Zamar, Segura, Meneses and Galan (2020) has conducted a study on Managing ICT for sustainable education: Research analysis in the context of higher Education. The study showed there is a relationship between science, sustainability and technology in higher education institutions.
- Rahmi, Alzahrani, Yahaya, Alalwan and Kamin (2020) has conducted a study on Digital communication Information and Communication Technology usage for Education Sustainability. The purpose of this study was to investigate students’ intention to use information and Communication Technology as well as their satisfaction with such use.
- Bravo, Jimenez and Cozer (2021) has conducted a study on Sustainability and Digital Teaching Competence in higher education. The study focuses on how sustainability is applied in higher education through teaching experiences linked to the use of ICT, where the digital teaching Competence is specified and put out in practices.

Method used in the study: Descriptive survey method is used in the present study.

Population and sample: The population of the Study includes all postgraduate students of higher educational institutions of Assam from which (4) four higher educational institution located in different district of Assam were selected as sample of the study. Simple random sampling technique was used to select students for collecting relevant data and the in the present study students’ sample size is 200.

Tool used: A self-structured questionnaire entitled “Computer Self-Efficacy, Computer Anxiety and Students’ Satisfaction on Use Of ICT” was used by the researcher for data collection. Total 30 questions are included in the questionnaire with a scoring of 1-3 for each item, for one student. Maximum score of the tool is 90 and Minimum score is 30. Basically, this questionnaire was developed for measuring ICT use status of higher education students reflecting their self-efficacy, computer anxiety and satisfaction. The tool is divided into 3 dimensions namely computer self efficacy, anxiety and satisfaction level of students on using ICT in which 10 questions are for self-efficacy, 12 questions for anxiety and 8 questions are for measuring satisfaction level of the learner. Highest score of self-Efficacy is 30, computer anxiety is 36 and level of satisfaction on using ICT is 24. On the basis of scoring 3 levels are categorised as high, average and low.

Statistical techniques: Percentage, tables and Pearson correlation etc. are used for statistical analysis of data.

Results: After analysis of data with proper statistical techniques following results are found.

Table 1: Level of Computer Self efficacy on use of ICT (N= 200)

Category	Range of Scores	No. Of students	Percentage
High	26-33	68	34%
Average	18-25	106	53%
Low	10-17	26	13%

Table 1 reveals that 34% students possess high level, 53% students possess average level and 13% students possess low level regarding the self-efficacy on use of ICT.

Table 2: Computer anxiety of students (N=200)

Category	Range of Scores	No. Of students	Percentage
High	29-37	42	21%
Average	20-28	102	51%
Low	12-19	56	28%

Table 2 reveals that 21 % students have high level, 51% students have average level and 28% students have low level of computer anxiety.

Table 3: Students’ Satisfaction level on use of ICT

Category	Range of Scores	No. Of students	Percentage
High	22-28	94	47%
Average	15-21	88	44%
Low	8-14	18	9%

Table 3 reveals that 47% students possess high level, 44% students possess average level and 9% students possess low level regarding their satisfaction level on use of ICT.

Table 4: For Ho1, Ho2 and Ho3: Co-efficient of correlation between computer self-efficacy and students’ satisfaction on use of ICT, computer self-efficacy and computer anxiety and between computer anxiety and students’ satisfaction (N=200)

Variable	r- value	Result	Remark
computer self-efficacy	0.7	Significant and Positive Correlation	Null Hypothesis is rejected
students’ satisfaction			
computer self-efficacy	-0.81	Significant but Negative correlation	Null hypothesis is rejected
Computer Anxiety			
computer anxiety	-0.76	Significant but Negative correlation	Null hypothesis is rejected
students’ satisfaction			

Findings of the study:

- Regarding use of ICT for learning, 29% of the students falls under the High level and 55% falls under the average level. And 16 % students fall under low level. That means most of the students use ICT for their learning process.
- In level of self-efficacy on use of ICT 34% students possess high level and 53% students possess average level and 13% students possess low level.
- In computer anxiety 21% students possess high level, 51% possess average level and 28% students possess low level computer anxiety.
- In students' satisfaction 47 % students falls under high level and 44% students falls under average level of satisfaction. And 9% students possess low level of satisfaction.
- There is a significant positively moderate relation between computer self-efficacy and students' satisfaction on use of ICT with r value of 0.7
- Significant but Negative correlation was found between computer self-efficacy and computer anxiety with -0.81r value. It indicates that if computer self-efficacy is high then Computer anxiety is low and if Computer anxiety is high the computer self-efficacy is low.
- Significant but Negative correlation was observed between computer anxiety and students' satisfaction with -0.76 r value. It indicates when computer anxiety is high, students' satisfaction is low and if computer anxiety is low then students' satisfaction is high.

Educational implications of the study:

Findings of the study reveal that a good number of students are observed in low level category self-efficacy. For those students who have low level of self-efficacy in using ICT, teachers should motivate or encourage them for using ICT tools in learning process. In this study we also found that most of the students have computer anxiety for many reasons. So those learners should do more practice for operating computer and other digital tools so that their fear of using ICT tools can be reduced. Proper training program should be organised by educational institutions. Most of the students are satisfied by using ICT tools in their learning process. They can effectively use ICT for their learning. It helps the students to understand a concept very clearly. It also helps them in self-learning. Because in higher education self-learning is very essential.

Conclusion: At the completion of the study, it can be concluded that ICT is very important and helpful for students for their learning process. Specially in higher education, ICT is needed to clear doubts of various difficult concepts. ICT is needed for sustainable educational management also. By using ICT in teaching learning process, every institution can attain environmental and economic sustainability.

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