IMPACT OF COMPUTER-RELATED STRESS ON LEARNING OUTCOMES OF UNDERGRADUATE STUDENTS IN TAI SOLARIN UNIVERSITY OF EDUCATION

BY

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Abstract

The study examined the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education. Two research questions guided the study. A descriptive research design of survey type was used. The population for this study comprised undergraduates in Tai Solarin University of Education, Ogun State, Nigeria for the academic session 2024/2025. A total of 200 undergraduate students from the selected university were selected as sample size using purposive sampling technique. The findings of the study revealed that there were high level responses of computer-related stress among undergraduate and that explanatory variable (computer-related stress) shown to be significantly impact learning outcomes of undergraduate students in Tai Solarin University of Education. It was recommended that the management of TASUED should provide more conducive learning environment, adequate IT infrastructural facilities, computer literacy should be encouraged to help lower anxiety and reduce stress in an IT environment.

Keywords: Computer-Related Stress, Learning Outcomes, Undergraduate Students

Introduction

One of the achievements of an institution is to improve the learning outcomes of students. Learning outcomes are statements of the knowledge, skills and abilities individual students should possess and they can demonstrate upon completion of a learning experience or sequence of

learning experiences. It is important to make sure that outcomes, which could be positive or negative are attainable. Outcomes need to be reviewed in light of students' ability, developmental levels, their initial skill sets, and the time available to attain these skill sets. They should also be in line with what is being taught. Learning outcomes should rely on active verbs in the future tense. It is important that outcomes be stated in the future tense in terms of what students should be able to do as a result of instructions earlier. For example, the learning outcome students have demonstrated proficiency in terms of students' actual performance instead of what they will be able to accomplish upon completion of the programme. Learning outcomes should also be active and observable so that they can be measured. Learning outcomes should be framed in terms of the program instead of specific classes that the it offers. However, Ebele and Nkiru (2024) stated that student learning outcomes are statements that specify what students will know, be able to do or be able to demonstrate when they have completed or participated in a course or program.

Osisanwo et al. (2019) were of the opinions that students learning outcomes comprised Intellectual skills. With this type of learning outcome, the learner will understand concepts, rules or procedures; and cognitive strategy. In this type of learning outcome, the learner uses personal strategies to think, organise, learn and behave, verbal information, and motor skills and attitude. The contemporary situation globally, requires` many sectors to directly work with computer and its tools including that of educational sector. The need for computer education in schools cannot be over emphasized. This is because computers make things easy in our society. Information Communication Technology has become an integral part of our society (Chiemeke, 2020). Exposure to this new medium gives one the opportunity to acquire unlimited amount of knowledge and a chance to communicate with others around the world. Information Communication Technology (ICT) is now a fast way to create, send and consume new information.

Computer Mediated Communication (CMC) extends mental capabilities and enhances our intellect (Lakos & Shelley, 2020). Computers have now been accepted "unconditionally" as an integral part of our entire educational system. The increase in computer usage is rapid and has also generated new challenges. In fact, one of the most dynamic and innovative areas of growth in education is the utilization of computer technology. Shinn (2019) asserted that for a school to remain competitive it also must adapt to changes and be innovative with its use of computers. She further stated that, despite income, school budgets and location, all students will have access to information through the internet (Shinn, 2019). Today, the internet is being used as a payment method; telecommunication traffic is also possible through the computer video and audio services (Jonah, 2017). Technology can play a vital role in helping students meet higher standard and perform at increased levels by promoting alternative, innovative approaches to teaching and learning. Email is taking the place of inter-office correspondence. Business is rapidly becoming computerized. Students and workers need to be comfortable with computers now more than ever. As the academic and business environment continues to move forward in computer technology, the gap is widening between development in computer technology and those people who experience computer anxiety.

Computer-Related Stress" or "Computer Anxiety" are used in the literature vocabulary due to teacher and student resistance to computer use (Ogunleye, 2022). Student computer-related stress, also known as computer stress or cyberphobia, refers to the fear, apprehension, and negative emotions a student experiences when interacting with or anticipating using computers, potentially impacting their academic performance and overall well-being. Computer stress or anxiety is a specific type of anxiety that manifests when an individual anticipates or experiences interaction with computers. It can include feelings of fear, apprehension, worry, and even physical symptoms like sweaty palms or rapid heartbeat. Computer anxiety can lead to avoidance of using computers, hindering students' ability to complete assignments, participate in online learning, and access educational resources. It can make it difficult for students to focus and concentrate on their studies, leading to decreased engagement and potentially lower grades. The stress and anxiety associated with computers can negatively impact a student's overall mental and emotional health (Ebele & Nkiru, 2024). According to Osisanwo et al. (2019), the factors contributing to computer related stress include lack of computer literacy or experience, fear of making mistakes or appearing incompetent, perceived lack of control over technology, negative past experiences with computers and rapid technological advancements and the pressure to keep up.

The causes of this resistance according to Nickerson (2021) are not unconnected with feelings of stupidity, fear of obsolescence, fear of the unfamiliar operations done with computers and the thought that computers have a dehumanizing effect. Psychological factors are important in educational research; they have been linked with improving student learning outcomes. Psychological factors are also important in correcting deviant behaviours of young people (Bolandifar & Noordin, 2018). Therefore, in considering computer utilization, it is important to consider psychological factors like computer stress. Studies have shown that computer related stress, lack of confidence, and lack of enjoyment influence both the acceptance of computers and their use as teaching and learning tools. Therefore, the need to disabuse the mind of both teachers and their students from such fears and replace these misconceptions with confidence building measures is more than ever paramount.

In this regard, computer ownership and computer experience are two very important and interrelated factors that can help in mitigating fear and computer related stress about computers from the minds of teachers and students (Lakos & Shelley, 2020). The teacher, if guarantee, may result in a reciprocal outcome of computer experience that provides the technical know-how and the intellectual ability to manipulate and discover the pedagogical power of the computer.

Most students are enthusiastic about gaining admission into the university without knowing that extent of intellectual challenges they will face, which will force and expose them to the use of smart technologies such as computer. Students must engage academically in order to acquire knowledge and skills that will equip them to face their academic challenges. In order to fully engage in their studies towards success, and to ensure timely submission of assignments, reading course contents and prepare for examinations, most students are forced by fast changing digital environment in

the 21st century where they have found themselves as digital natives, to rely on the use of smart solution applications. The benefits of innovations in the Information and Communication Technology are seen in students' everyday life but little or nothing is known about the effect of computer-related stress on learning outcomes.

However, the usage of Tai Solarin University of Education as case study for this paper was that, the university was special as it's based on education and education is learning. Both education and learning aim to acquire knowledge, skills, and new information, and both can happen at any age, often driven by use of technology, formal process often involving guidance from teachers/lecturer, learning is a broader, lifelong process that can happen through formal education or informal experiences. Hence, this study sought to examine the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education.

The main objective of the study was to examine the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education. Specifically, the study sought to:

1. Identify the level of computer-related stress among undergraduate students in Tai Solarin University of Education.
2. Investigate the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education.

The following research questions guided this study:

1. What is the level of computer-related stress among undergraduate students in Tai Solarin University of Education?
2. What is the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education?

Literature

Ebele and Nkiru (2024) investigated the prediction of students' academic achievements in Computer Studies by academic stress in Awka Education Zone of Anambra State, Nigeria. The findings of the study revealed, among others, that academic stress does not significantly predict students' achievement in Computer Studies and the moderating influence of gender in the prediction is insignificant. Igwe and Ejide (2024) investigated the relationship between technostress and academic engagement of undergraduate university students in Anambra State. The findings revealed that technostress had a very low positive relationship with students' academic engagement. This suggests that technostress had marginal or no relationship with academic engagement. Ishola et al. (2022) examined human-computer interaction and techno-stress among undergraduates. Findings showed that undergraduates have positive perceptions of technology-influenced stress, and based on gender and age, no significant difference exists in their perceptions. Osisanwo and Ehioghae (2022) investigate computer anxiety as a correlate of use of Information Technology tool by undergraduates of Library and Information Science in Tai Solarin University of Education (TASUED), Ijagun, Ogun State. Findings show that the level of computer anxiety among LIS undergraduates is high. The available IT tools among LIS undergraduates are mobile technology, laptops, CD-ROM, printers and internet search engines. The most frequency utilized IT tools among LIS

undergraduate are mobile technology and laptops. The impact of computer anxiety on students' utilization of IT tools is high. Fitzgerald (2021) explored how technology characteristics influence students' technostress, and in turn their perceived academic performance. The results showed some technology characteristics were associated with technostress, while some were not.

Research Method

The study uses a descriptive research design of survey type. This design is considered very appropriate because the researchers intend to collect data from the selected respondents to provide answer to the study objectives. The population for this study comprised undergraduates in Tai Solarin University of Education, Ogun State, Nigeria for the academic session 2024/2025. A total of 200 undergraduates from Tai Solarin University of Education, for the academic session 2024/2025 were selected as sample size. Purposive sampling technique was use for the selection of the sample size. However, only Educational Technology undergraduates were selected for the study. The study used researcher developed questionnaire; titled: Computer-Related Stress and Learning Outcomes of Undergraduates Questionnaire (CRSLOQ). The questionnaire (CRSLOQ) requested responses on a four (4) – point scale format. The responses rating scales are as follows: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). The questionnaire divided into two sections A and B. Section A focuses on demographic characteristics of the respondents, while section B focuses on the related items on level of computer-related stress and learning outcomes. The initial draft of the instrument was subjected to face validity by the experts from Educational Technology. To ensure the reliability of the instrument, a reliability exercise was carried out. The instruments were administered to a sample of 25 Educational Management undergraduates. The purpose was determined the stability and consistency of the instruments. Cronbach's Alpha was used to determine the level of reliability coefficient which yielded 0.81. Data were collected using the validated instrument. The researchers administered the questionnaire with the help of 3 research assistants to the respondents. Mean and standard deviation were used for analyzing research question 1 and research question 2 was answered using regression analysis at 0.05 level of significance.

Results

Research Question 1: What is the level of computer-related stress among undergraduate students in Tai Solarin University of Education?

Table 1: Descriptive statistics on the level of computer-related stress among undergraduate students in Tai Solarin University of Education

Items	Mean	SD
I enjoy working with computers.	2.88	.997
I am confident in my ability to use computers.	3.14	.751
I feel tense whenever I am working on a computer.	3.15	.733
I feel anxious whenever I am using computer.	2.94	.903
I would like to continue working with computers in the future.	3.26	.746
Cluster Mean	3.07	

Source: Field Survey, 2025

Table 1 showed that cluster mean was 3.07 which greater than bench mark mean value 2.50. The implication of this result was that there were high level responses of computer-related stress among undergraduate students in Tai Solarin University of Education.

Research Question 2: What is the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education?

Table 2: Impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.406	1.035		15.854	.000
	Computer-related stress	.696	.032	.593	21.624	.000

a. Dependent Variable: Leaning outcomes

Table 2 demonstrated that the coefficient of computer-related stress had a positive sign, suggesting that raising or improving in computer-related stress would enhance the learning outcomes of undergraduates. With a magnitude of computer-related stress (β =.593, t = 21.624, p <.05) and a p-value less than 0.05, the explanatory variable (computer-related stress) was shown to be significantly impact learning outcomes of undergraduate students in Tai Solarin University of Education.

Discussion

The findings of the study revealed that there were high level responses of computer-related stress among undergraduate students in Tai Solarin University of Education. These findings were in consonant with Fitzgerald (2021) showed some technology characteristics were associated with technostress, while some were not. The students' technostress could, however, not be determined to have an association with their perceived academic performance. The study discusses possible contributing factors to the results. Oladosu et al. (2020) findings of the study revealed that as undergraduate students use smart devices, they become techno-stressed, and this is negatively influencing their learning with the devices. Adenekan (2024) finding revealed that the respondents experienced cognitive, affective and behavioural forms of techno stress, which had negative effect on their personal and professional development.

The findings also revealed that the coefficient of computer-related stress had a positive sign, suggesting that raising or improving in computer-related stress would enhance the learning outcomes of undergraduates and that a p-value less than 0.05, the explanatory variable (computer-related stress) was shown to be significantly impact learning outcomes of undergraduate students in Tai Solarin University of Education. These findings correlate with Wang et al. (2021) showed that, in the past 20 years, the application of human–computer interaction not only made significant contributions to the development of hazard recognition, but also generated a series of new research

subjects, such as multimodal physiological data analysis in hazard recognition experiments, development of intuitive devices and sensors, and the human–computer interaction safety management platform based on big data. Future research modules include computer vision, computer simulation, virtual reality, and ergonomics. Ahmed et al. (2023) finds out school portal was the most common information system (IS) in all the institution, and these portals are not meant for e-learning but rather registration.

Conclusion

This study examined the impact of computer-related stress on learning outcomes of undergraduate students in Tai Solarin University of Education, the following conclusions were drawn based on the findings of the study that: there were high level responses of computer-related stress among undergraduate students and also that the explanatory variable (computer-related stress) was shown to be significantly impact learning outcomes of undergraduate students in Tai Solarin University of Education.

Recommendations

The following recommendations were raised in line with the findings of the study:

1. The university management should equip department with technological tools to aid the use of computer in instructional delivery for undergraduates.
2. The management of TASUED should provide more conducive learning environment, adequate IT infrastructural facilities, computer literacy should be encouraged to help lower anxiety and reduce stress in an IT environment and that head of Departments should make sure that computer-oriented courses are taught by lecturers who are trained in the use of ICT facilities in teaching and learning.

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