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RESEARCH ARTICLE

Psychosocial Factors Influencing Student's Attitude Towards Computer Based Test

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Abstract

In recent times, the educational landscape of Nigeria has witnessed an increasing adoption of the computer-based test (CBT) for students' assessment, especially in tertiary institutions. Perhaps, the phenomenon has been utilized for various purposes in the world of work. However, insinuations suggest a disparity in student's attitudes towards the adoption of the system for exam purposes. Thus, the present research aims to examine computer anxiety and self-esteem as socio-psychological constructs contributing to the variation in students' attitudes towards CBT in tertiary institutions. Two hypotheses were formulated to guide the study. A convenience sample of one hundred and ninety-five undergraduates pooled from various faculties in three public tertiary institutions in the Kogi state participated in the study. The respondents completed a self-report measure of attitude towards CBT, a computer anxiety scale, and the Rosenberg self-esteem scale. The result revealed that computer anxiety positively predicted the respondent's attitude towards CBT. However, self-esteem negatively correlated with the student's attitudes towards CBT. The study concludes that computer anxiety positively determines students' attitudes towards adopting CBT for assessment purposes.

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Introduction:-

Information and communication technologies have been engrossed in every part of human activities (Kondra, 2020; Sharma, 2011). Perhaps, the world is increasingly evolving into digital media. The advancement in digital learning has transformed the higher education systems to meet quality education demands in recent years. Possibly, there are boundless opportunities with the integration of ICT in the education system. For example, it ensures greater access, quality, and equity in higher educational institutions (Mir, 2019). Also, the trend has resulted in remarkable growth in the sector. ICT has reformed the practices and procedures of nearly all forms of endeavor within the academic environment (Das, 2019; Marqués, 2014), including record keeping and management of resources (Ghavifekr et al., 2013). ICT tools are extensively immersed in education (Duma & Monda, 2013; McFarlane & Sakellariou, 2002), and it is affecting every aspect of the system from teaching-learning to assessment and evaluation. Accordingly, (Adegbija & Daramola, 2012) contend that technology in education has ensured reliability, efficiency, and universality due to its role in e-assessment.

The global digital trend is increasingly noticed in higher education in developing countries, including Nigeria. Apart from its role in distance learning, technological innovation is gaining ground in the examination systems of Nigerian education. Although the conventional examination methods are widely accepted in the educational systems,

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considerable efforts are geared towards adopting a novel digital-based evaluation system (Geraili-Afra et al., 2018). Although using a computer to test knowledge has been used in developed countries in the past decades (Daramola, 2018). The gradual acceptance of CBT is considered an ideal development for assessing students and prospective job seekers (Oluwatosin & Samson, 2013). It has a significant impact on the educational history of the country. CBT ensures fairness and effectiveness in the evaluation process (Sanna et al., 2012) and has several important advantages compared to paper-based exams, such as efficiency, immediate scoring, and feedback, especially in multiple-choice question exams (Boevé et al., 2015). The system provides an improved means for protecting examination questions against unauthorized access (Sarjiyus, 2019).

Computer-based examination with flexibility, efficiency, and speed is gradually becoming an acceptable standard of administering exams across institutions in Nigeria. However, observation suggests that the CBT assessment approach is not an entirely fair method to most undergraduates. Thus, prompting elevated anxiousness (Balogun & Olanrewaju, 2016; Nwagwu & Adebayo, 2016; Olufemi, 2014). Nevertheless, CBT's purpose is not to assess the student's computer literacy or familiarity but to assess the student's knowledge and competence in a course.

Scholars have evaluated the prospect and challenges associated with the adoption of the CBT model in the education of Nigeria (Abubakar & Adebayo, 2014; Awofala, 2020; Chibuzo & Isiaka, 2020; Durojaye et al., 2015; Nwagwu & Adebayo, 2016; Obowu-Adutchay et al., 2019; Olawuyi, 2018; Olufemi, 2014; Rabiou et al., 2020; Sanni & Mohammad, 2015; Tella & Bashorun, 2012). The studies revealed varying results but showed that CBT is preferred to the conventional paper-pencil. The CBT model has been an acceptable method in public and privately-owned educational institutions in Nigeria for students assessments (Olufemi, 2014). CBT streamlines the examination systems, including generation, execution, evaluation, presentation, and archiving of results. This simplification saves time and money while improving reliability. Thus, it is crucial to understand the students' attitudes and influencing factors (Deutsch et al., 2012). Therefore, the present study aims to examine the psychosocial correlates of student's attitudes towards CBT.

Attitudes denote a critical socio-psychological construct that reflects an individual's positive or negative evaluation of any aspect of their socio-world, including objects and situations. Perhaps, attitudes are learned predispositions with the potentiality of influencing human behavior in favorable or unfavorable conditions. Intimation suggests that students' attitudes are an essential determinant of their response to the academic phenomenon and affect their overall performance. Bahar and Asil (2018) have emphasized the need for increased focus on attitudes towards computer-based and online education.

Numerous studies have examined the correlates of student's attitudes towards CBT. For example, Tella and Bashorun (2012) explored students' attitudes towards computer-based tests at the University of Ilorin, Nigeria using 2209 undergraduates from different faculties. The study established a favorable attitude towards CBT by the participants. It also revealed that the students are more comfortable with the system than the traditional pattern. However, Yurdabakan and Uzunkavak (2012) investigated the attitudes of primary school students towards computer-based testing and assessment in terms of different variables using primary school. The results indicated that school type significantly influenced the student's attitude towards CBT.

Similarly, Dammas (2016) examined the students' attitude towards computer-based tests at the KAU - Saudi Arabia Jeddah using a sample of sixty undergraduates who had previously taken exams by CBT. The result revealed that prior experience influenced the student's attitude on the use of CBT. In their study, Bahar and Asil (2018) found that university students who used computers for a more extended period had significantly higher scores on attitude towards e-assessment than those who used computers less. In addition, Ali (2012) assessed the factors influencing nursing students' satisfaction with the e-learning experience in King Khalid University utilizing a convenience sample of 135 female nursing students. The result indicated that computer anxiety, e-learning course flexibility, technology quality, perceived usefulness, ease of use, diversity in assessment, and learner perceived interaction with others were the critical factors affecting learners' attitude towards e-assessment.

The present study focuses on computer anxiety and self-esteem as psychosocial variables explaining the variation in students' attitudes towards CBT. Computer anxiety entails the state of fear or tension of close contact with a computer that might be inconsistent with the actual danger presented to computer users. The condition has been linked with decreased use and avoidance of computer-related tasks and student engagement (Lee & Xiong, 2021). In addition, research has noted that computer anxiety is correlated with attitudes towards computers (Korobili et al.,

2010). Also, Rahardjo et al. (2013) had established a link between computer anxiety and academic stress and procrastination. The phenomenon has been identified as a significant problem for many students, especially freshmen (Oyadeyi, 2018).

Self-esteem refers to the favorable or unfavorable perception of the self. Thus, it reflects the totality of people's evaluation of their worth. Perhaps, research has emphasized the wide gap between people that scored high in self-esteem and those with low self-esteem concerning behavior (Baumeister et al., 2003). More so, evidence abounds that suggests that self-esteem is a significant predictor of attitudes (Ahmed, 2016; Osmanaga, 2017). Attitude is a multidimensional construct that is influenced by several biological and environmental variables. However, the link between self-esteem and attitude towards e-assessment has not received much research attention. The primary purpose of the present study is to answer the question: would computer anxiety and self-esteem influence student's attitudes towards CBT. Thus, it is hypothesized that;

1. Computer anxiety would significantly predict student's attitudes towards CBT
2. Self-esteem would significantly predict student's attitudes towards CBT.

Method:-

In this study, a cross-sectional survey was adopted. Students enrolled in the tertiary education system in the Kogi State of Nigeria constituted the study's population. A convenience sample of two hundred and thirty-three undergraduates comprising males and females primarily pooled from three public institutions in the study parameter participated in the study. They were approached between July and September 2021. The students were prepared and briefed on the research purpose before the commencement of the study. Out of the 233 students approached, 211 consented to partake in the study and were given the study instrument to fill on the spot. Apart from 16 wrongly filled questionnaires, the correctly filled ones (195) were subjected to statistical analysis.

Measure:-

Attitude towards CBT

Attitude towards computer-based tests was measured using a self-developed instrument designed to measure undergraduates' attitudes towards the computer-based examination. The 10-item scale is answered in a 5-point Likert-type questionnaire. The scale's reliability was ascertained after a pilot study was done with the scale, and a Cronbach alpha $r=.092$ coefficient was recorded on the scale.

Computer anxiety

Computer anxiety was assessed with a modified version of the Computer Anxiety Scale (CAS) initially developed by Agaoglu et al. (2008). The scale assesses student's anxiety and fears when confronted with the possibility of using computers or directly using computers. The originally 28 items scale was modified to 15 items to fit the present context. The instrument is a 4-point Likert-type ranging from "never", "sometimes", "frequently", and "always". Higher scores on the scale reflect a higher level of computer anxiety. The scale recorded a Cronbach alpha $.76$ in the study.

Self-esteem

Self-esteem was measured using the Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965). The scale consisted of 10 items measuring respondent's self-esteem. The items were designed and scored in a four-point response scale ranging from Strongly Agree = 1, Agree = 2, Disagree = 3, and Strongly Disagree = 4. It also has direct scoring patterns (for items like 1, 3, 4, 7, and 10); and reversed scoring designs for the remaining items (2, 5, 6, 8, and 9). The scale was scored by summing up the total scores for the ten items, and the higher the scores, the higher the self-esteem.

Result:-

A multiple regression analysis was conducted to determine the predictive role of computer anxiety and self-esteem on student's attitudes towards CBT. The investigation revealed that computer anxiety is a positive predictor of attitude towards CBT at $F(1,193), 60.035, P<.000$. Thus, the first hypothesis that computer anxiety would significantly predict attitude towards CBT was confirmed. Conversely, the assumption that self-esteem would significantly predict attitude towards CBT was not supported $F(2,191), 31.222, P>.212$.

Table 1:- The table shows the result of the multiple regression analysis conducted to determine computer anxiety and self-esteem on attitude towards CBT.

	95% CI for B			SEB	β	t	Sig
	B	LL	UL				
Constant	2.35	2.09	2.61	.14		17.598	.000
CA	-.48	-.59	-.39	.07	-.48	-7.840	.000
Self-esteem	-.08	-.21	.32	.07	-.088	-1.447	.212
R ²	.432						

Note. C A= Computer anxiety; B = Unstandardized regression coefficient; CI = Confident Interval; LL = Lower Limit; UL = Upper Limit; SEB = Standardized error of the coefficient; β = Standardized coefficient; R² = Coefficient of determination. *P<.000. **p>.212

Discussion:-

The present study aimed to investigate the variation in student's attitudes towards computer-based tests in tertiary institutions based on computer anxiety and self-esteem. Data from one hundred and ninety-five respondents were analyzed with a multiple regression model. First, the study hypothesized that computer anxiety would significantly predict attitudes towards CBT. The findings of the study showed that computer anxiety positively predicted attitude towards CBT. Thus, the study's prediction is confirmed, meaning that those who scored high in computer anxiety are more likely to exhibit a negative attitude towards the CBT system. At the same time, those with less computer-related anxiousness are keener to embrace the system. Perhaps, previous research has found a correlation between computer anxiety and student's attitude in another domain (Korobili et al., 2010). Thus, the association entails that computer-related anxieties impact student's evaluation of e-assessment and significantly determine their response to computer use. It is inferred from this result that students with computer anxiety will be skeptical of using a computer to write their exams, leading to varieties of dishonest behaviors and consequent academic failures. Nevertheless, research has linked computer anxieties to academic performance (Chou, 2001; Schlebusch, 2018). Accordingly, Celik and Yesilyurt (2013) contend that students with computer anxiety will typically only briefly use computers while taking excessive caution when doing so. One probable explanation of the computer anxiousness of students could be attributed to the student's background. Thus, those who are not exposed to the trending technological innovations in ICT may perceive anything that has to do with computers as complex and beyond their capabilities. Consequently, these students will exhibit resistance to technology, and this anxiety will reflect in fear of using computers. In addition, Schlebusch (2018) noted that these students might experience poorer performance and debilitating thoughts during actual interaction with the computer.

Furthermore, the second prediction of the study that self-esteem would influence students' attitudes towards CBT was not supported by the multiple regression analysis performed on the data. Thus, it means that a student's self-evaluation has nothing to do with one's cognitive, affective, and behavioral tendencies towards the trending computer assessment system. Self-esteem could either be high or low. Researchers have found an association between self-esteem and academic performance (Arshad et al., 2015; Christy & Mythili, 2020; Perveen et al., 2021). Also, intimations suggest that students with high self-esteem get better grades, feel less stress, and do more things. At the same time, low self-esteem can lead to constant self-criticism and persistent feelings of anxiety. Conversely, the result suggests that neither high nor low self-esteem predicts student's attitudes towards the CBT system. This revelation could be explained in that the modest correlations between self-esteem and attitudes do not indicate that high self-esteem leads to a positive attitude or vice versa.

Conclusion:-

The present study concludes that students' computer anxiety is a significant determinant of students' attitudes towards the use of technology in assessment. However, self-esteem was negatively correlated with attitudes towards CBT. It is implied that computer anxiety is an emotional component that could hinder the sustainability of e-assessment in the country's educational landscape. Perhaps, the present study provides valuable data to policies

aimed at CBT sustainability in tertiary institutions in Nigeria. Although, the result is fraught with particular limitations. For instance, the self-report measures pose a challenge to the generalization of the findings. However, the study recommends that institutions adopting CBT employ simulation CBT exercises to make the students conversant with the system before the main examination.

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