Exploring Examinees' Satisfaction with Computer-Based Test (CBT) in a developing country: The Mediating Role of CBT Centre Service Satisfaction

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Abstract. User satisfaction with most goods and services in the information system (IS) has been well studied. However, there appears to be little research on examinees' satisfaction with facilities and services provided at computer-based test (CBT) centres, particularly when the centres are equipped and manned by outsourced vendors. In Nigeria, the CBT centres are public and private examination centres equipped to conduct the annual matriculation examination computer-based test. The study aims to investigate and empirically test the role of quality factors in predicting CBT satisfaction. The study also intends to test a mediator to explore further how some quality factors influence the examinee's satisfaction. The research framework is based on the updated information system success model (ISSM) and is validated using a survey incorporating system quality, service quality, question content, the cost-effectiveness of CBT services, and CBT centre service satisfaction. A total of 455 surveys using structural equation modelling were analysed.

Keywords: Computer-based test, E-assessment, E-exam, CBT satisfaction, E-assessment quality factors.

1 Introduction

Learning and teaching have been transformed worldwide due to the development of information systems (IS) and information and communication technologies (ICT). Today's computer technologies and other multimedia aspects make it easier to teach and learn in various settings. As a result of this trend, electronic assessment systems (E-assessment), also known as computer-based testing (CBT), computer-based assessment (CBA), and other names, have become increasingly popular [1].

During the Covid-19 pandemic, online teaching adoption became globally acknowledged due to the closure of educational institutions as a social distance approach [2]. New research by the International Association of Universities (IAU) has found that 91% of all universities surveyed have shifted away from face-to-face teaching and are developing tactics for ongoing learning [3]. The transition to online teaching has created significant challenges for educational institutions regarding exam

organisation and ensuring that students are well-equipped to advance in their studies. Electronic tests have been launched as an efficient assessment mode with specific emphasis on immediate feedback on examinations, which is seen as difficult for university staff as the number of students increases [3]. Though the initial investment is large, CBT is much less expensive. The more costly and capital-intensive paper-pencil test (PPT), costs involved in testing, shipping to custodians, and personnel for examinations add to the total cost. The CBT accepts flexibility, and dates have a higher frequency, which benefits applicants by providing more access and flexibility in scheduling [4].

While many findings obtained from the PPT may not apply to CBT, thus, additional research is required to examine how the e-quality assessment's attributes influence examinee satisfaction. Furthermore, previous works [5, 6, 7, 8] have confirmed the importance of system and service qualities in the examinee's satisfaction with CBT, linking them directly to user satisfaction. However, only limited research has explored how these variables affect student satisfaction with CBT. Thus, the overall objective of this study is to explore and empirically test quality factors' influence on how well they predict how satisfied an examinee will be with their CBT. Next, by testing a mediator to comprehend better the connection between the CBT centres' facilities and services and their overall satisfaction. Therefore, this study asks the question "How does the quality of the services and facilities provided at the CBT centres affect the overall satisfaction with the CBT experience?"

2 Literature Review

2.1 Theoretical Background

This study was conceived based on the updated Delone and McLean's ISSM [9], which connects system quality, service quality, and information quality to overall user satisfaction and overall system use, which jointly influence comprehensive net benefits. The model is shown in Fig. 1.

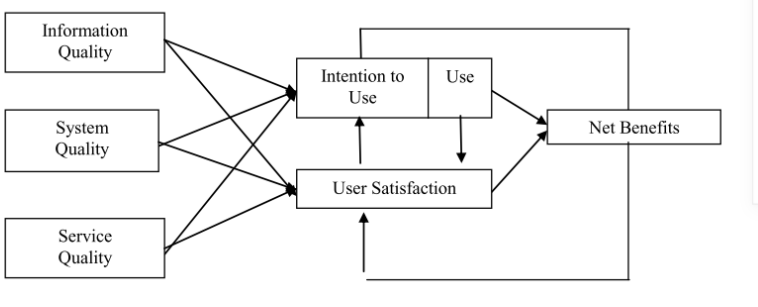

Fig. 1. Delone and McLean IS Success Model [9].

This study incorporates the Delone and McLean [9] system success model with assessment features relevant to CBT. In the educational context, authors Lin and Lai [10] recommend considering the dynamic nature of the constructs and incorporating both individual and social factors that bear on teaching and learning. To identify the examinee's satisfaction with the CBT services, there is a need to distinguish the examinee's satisfaction with the CBT services provided by the trusted third parties (CBT centres) from satisfaction with their overall CBT experience [11]. Furthermore, studies such as [12], [13], and [14] have replaced the information quality component of Delone and McLean [9] with content in a content-oriented system (such as e-assessment, e-learning, and web blogs). While previous research has validated the importance of CBT services' cost-effectiveness (compared to paper-based exams), little is known about how CBT services' cost-effectiveness affects examination satisfaction.

System quality. System performance characteristics focus on quality. A sound quality system quickly identifies functional IS groupings and navigational options through resources supplied by the IS [13]. Hardware and software system quality is involved, essentially. Other previous studies pointed out various criteria for determining system quality when assessing a system, including speed, time, accuracy, stability, functionality, and accessibility [15,16]. System-related and task-related variables are primarily responsible for the CBT quality factor [9]. It was found in Jordan during the Covid-19 pandemic that internet connection and assessment platform challenges were obstacles to CBT success. Login issues can also delay initiating the CBT, as previously proven in studies [3].

Service quality. Despite the trusted third parties (TTP) involvement in providing some CBT services and facilities, there are still delivery challenges. The challenges may include power outages and interruptions, examination personnel's ICT literacy, and poorly run examination centres [17, 18]. Service quality looks at the support or assistance provided by the service provider [9], services given by information systems, such as training and helpdesk services [19]. Organisational competitive advantages and the quality of service go hand in hand. The joint admission and matriculation board (JAMB), the Nigerian agency responsible for conducting the annual unified tertiary matriculation examination (UTME) computer-based test, is a non-profit organisation, and as such, it offers no competitive advantage. Given this, the entire CBT centre supports employees, and JAMB's staff support is categorised as a service.

CBT content. The CBT question content and presentation are some of the issues and obstacles faced by examinees of CBT [17, 18]. Limited empirical research has studied the impact of question content on CBT satisfaction. Multiple research studies suggest that IS content (such as e-learning, e-training) affects user satisfaction [20, 21, 19, 22]. The assessment questions' content is focused on quality and quantity [23]. In addition, the examinees of CBT thought the items on the questions were accurate, trustworthy, relevant, correct, and reliable [23]. The contents of the question are essential since they must be given objectively without regard to age, gender, religion, or political affiliation [23]. Additional recommendations show that question design and presentation also influence the assessment quality [24]. Fig. 2 illustrates a unified tertiary matriculation

examination (UTME) CBT sample question. According to higher education students from Jordan, the questions on CBT interfered with their grades and teaching [3].

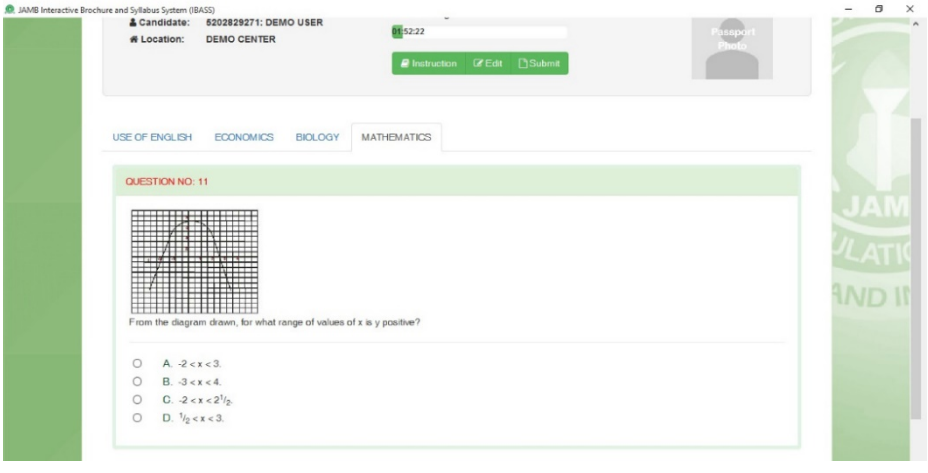

Fig. 2. Sampled UTME CBT question

CBT services cost-effectiveness. Cost-effective teaching and learning approaches are required to expand student numbers [25]. An economic variable must be considered in CBT quality requirements [26]. The cost-effectiveness of the CBT system is defined as the overall satisfaction with the system compared to the examinee's expenses for various services [26]. Every examinee should be aware of all costs and fees [23]. Ultimately, it is all about flexibility, duration, visibility, and expense. Examinees of electronic exams in Nigeria are manned by the joint admission and matriculation board (JAMB), and private entities like the electronic testing company (ETC) usually pay for some pre-examination or post-examination services or purchase scratch cards from the organisations before or after the exam [27]. The Cost-effectiveness relates to consumers' perceived benefit/cost-effectiveness [28]. CBT candidates must be aware of all service fees, and fees must be transparent. CBT studies are lacking in exploring examinees' satisfaction with CBT services' cost-effectiveness.

CBT centre service satisfaction. Computer-based testing centres in Nigeria are validated regularly to make sure examinees have a positive experience [4]. Various state institutions, individuals and private organisations own the CBT centres used for the UTME across Nigeria. Training, mock exams, CBT, and technical personnel are all provided at the CBT centres. Fig. 3 is a typical CBT centre in Nigeria. Encouraging CBT adoption demands a stress-free environment [2]. Some CBT centres in Nigeria are unpleasant due to continuous network failure, power supply failure, and computer system failures [29]. Most educational institutions implemented in-campus CBT in the wake of the Coronavirus outbreak [3], and students have similar experiences when taking an in-campus CBT. CBT centre services support examinees by exam personnel and the quality of the services received, such as network and power supply services.

While trusted third parties provide certain CBT services and facilities, measuring examinees' satisfaction with those vendors' services is essential.

Fig 3. A typical CBT center in Nigeria.

Overall CBT satisfaction. Previous research has shown that "user satisfaction" and "overall user satisfaction" are frequently used interchangeably. Overall satisfaction is "the IS overall user's affective and cognitive assessment of the pleasurable level of consumption-related fulfilment achieved with the IS" [30]. Overall user satisfaction includes both the systems and the services supplied [31]. Few research studies focus on CBT examinee satisfaction like Vairamuthu and Anouncia [6] investigated how usability issues impact satisfaction with an online assessment at an academic institution. Dobre [7] applied the Intelligent Tutoring System in a study done in Romania for information gathering on the CBT satisfaction of 27 students. A survey on students' involvement and feedback on formative CBT satisfaction at the University of Rwanda gathered 138 responses [8].

2.2 Research Model and Hypotheses Development

This study proposed system, service quality, CBT content, and CBT services' cost-effectiveness as primary drivers of overall CBT satisfaction, and the impacts of service and system quality are mediated through CBT centre service satisfaction. Prior research found that quality factors impact information systems' overall satisfaction [9]. This

study examined CBT center service satisfaction with quality factors- satisfaction relationship. The conceptual research model is shown in Fig. 4.

CBT centre service satisfaction and overall CBT satisfaction. Wang et al. [11] studied airline services, Eiamkanchanalai and Assarut [32] explored banking services, and all reported users' high level of satisfaction with their experiences. Wang et al. [11] revealed that satisfaction with travel technology-enabled services affects overall satisfaction with the airline experience. Furthermore, Eiamkanchanalai and Assarut [32] investigated the impact of service quality on customer satisfaction in traditional and online banking services in Thailand. These studies found that service satisfaction had a carry-over effect on overall satisfaction. The initial impression is essential since it sets the tone for subsequent experiences. Those satisfied with the service provided at CBT centres may also be satisfied with their overall CBT experience. This study proposed that:

H1: Examinees' satisfaction with the CBT centre services will positively influence their overall satisfaction with the CBT.

System quality and CBT centre service satisfaction. Quality challenges have emerged as information technologies are widely employed. Studies of satisfaction with computer-based test facilities and services appear to be relatively minimal. Shin [14] showed a significant correlation between system quality and user satisfaction with smartphone-based telecom services. Alzabi et al. [33] revealed that system quality factors, such as accessibility, attractiveness, and navigation, significantly influenced customer service satisfaction with mobile communication service providers in Kuwait. Noh and Chang [34] showed that system design influences user satisfaction with online research services. The results show that an increased level of system quality in China and Korea is linked to higher user service satisfaction. So, this study proposes that:

H2: CBT system quality positively influences the examinee's satisfaction with the CBT centre services.

Service quality and CBT centre service satisfaction. "A service is a series of activities, more or less intangible in nature, which, normally, but not necessarily, take place in interactions between customers and service employees and/or physical resources or goods and/or systems of the service provider" [35]. Various service providers meet students' needs with long-term and continuous service provided to students [35]. Cognitive evaluation of service quality focuses on service speed and effectiveness. Service quality was found to be strongly linked to customers' overall satisfaction with technology-enabled services, as established by [11] in the banking industry, [35] in education, [36] in airline e-services, [37] in Taiwan, and [33] in Kuwait.

Because of the positive effect that assessment service quality has on examinees, a hypothesis is as a result of this offered which states:

H3: CBT's service quality will positively influence examinees' CBT centre service satisfaction.

System quality and Overall satisfaction. System quality is associated with overall user satisfaction [9, 38, 39, 40]. The overall quality of the system predicts how satisfied a user will be. System quality influences customer satisfaction while shopping online, as found in [38]. Like this, Ramayah and Lee [39] discovered that e-learning system quality relates to learner satisfaction. Almarashdeh [41] confirmed this in a study that specifically found teachers' satisfaction with e-learning platforms. Hence, it is assumed that.

H4: CBT system quality positively influences the overall satisfaction with the CBT system.

Service quality and Overall satisfaction. Some studies have established an effective service quality-satisfaction relationship [41, 39, 19]. Instructors' satisfaction with the e-learning system was the concern of [41], but students' satisfaction was the concern of [39] and [19]. Their findings establish that the quality of e-learning services has a significant and positive effect on learner satisfaction. Therefore, we would like to verify this with examinees of CBT further:

H5: CBT service quality positively influences the examinee's overall satisfaction.

CBT content and overall examinee satisfaction. Hassanzadeh, Kanaani, and Elahi [21] and Mohammadi [19] studied the relationship between an information system's content and learner satisfaction and found statistically significant correlations. Seta et al. [20], in their e-learning system success research, found information and content quality to have a substantial influence on users' perceived satisfaction in Indonesia. Similarly, in independent research, [21] and [19] demonstrated the influence of content quality on learner satisfaction with the e-learning system.

CBT research should also analyse the relationship between CBT content and overall satisfaction. Hence,

H6: CBT content positively influences the overall satisfaction with the CBT system.

CBT services cost-effectiveness and overall satisfaction. Researchers examined the relationship between service cost-effectiveness and user satisfaction and discovered statistically significant associations [42, 43]. As empirically proven, banks' ATM service cost-effectiveness affects consumers' satisfaction with the banks' services [42]. The cost-effectiveness of e-banking services affects customers' satisfaction with the bank [44], and the cost-effectiveness of the telemedicine system increases patient satisfaction [43]. Exam services' cost-effectiveness and satisfaction are understudied. Thus, to ensure a relationship between the cost-effectiveness of exam services and user satisfaction within CBT, these relationships must be examined. Therefore, the following hypothesis is proposed:

H7: CBT services' cost-effectiveness positively influences the overall satisfaction with the CBT system.

The Mediating Role of CBT centre service satisfaction. System and service quality are necessary conditions for information system service satisfaction [14, 11]. System

and service qualities have also been proposed to directly influence information system satisfaction [33, 34, 11, 35]. Researchers also discovered that satisfaction with information system services correlates with users' overall satisfaction [11,32]. Therefore, from the empirical point of view, it is assumed that there is a relationship between the system, service quality, and overall satisfaction through the effect of service satisfaction. But the extant literature is yet to study the indirect impact of quality factors of CBT on overall CBT satisfaction. Thus, we are proposing:

H8: Examinees' satisfaction with the services provided at the CBT centre mediates the relationship between system quality and overall CBT satisfaction.

H9: Examinees' satisfaction with the services provided at the CBT centre mediates the relationship between service quality and overall CBT satisfaction.

Control Variables

According to previous research [45; 46], individual responses to IS may differ based on age, gender, education and other socio-demographic variables. Moreover, since our primary unit of analysis is the individual (student), and the single-site data collection allows for controlling other variables [45], thus, this study controls gender, experience (CBT trained or untrained examinee), and type of secondary school of the examinee (public or private) to adjust the result [47]. As most of the examinees fall within the same age group, we did not control the effect of age. We measured gender (male or female), school type (private or public) and CBT experience (trained or untrained examinee) as binary variables.

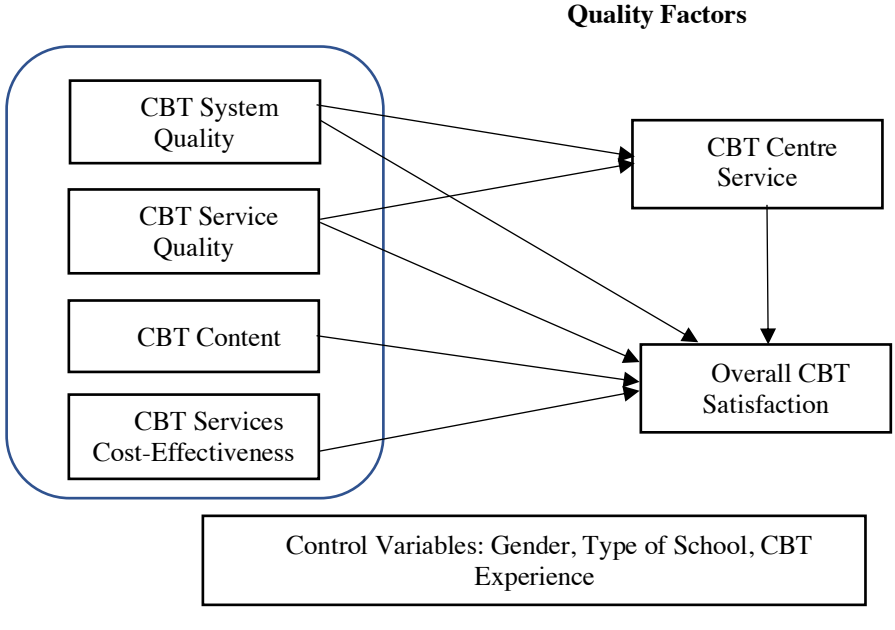

Fig. 4: Examinee's CBT satisfaction model

3 Methodology

3.1 Instrument development

A research questionnaire was created using previously used, tested, and validated instruments. The questionnaire contained 30 items divided into two sections. The first section asked for demographic information and included seven questions (see Table 1). The second section examined factors affecting CBT quality and students' satisfaction with CBT centre services, and overall CBT satisfaction (see Table 2 for more information about the items).

A five-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree, and 5 = strongly agree) was used to assess all items related to quality factors in the survey questionnaire, whereas a seven-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = somewhat disagree; 4 = neutral; 4 = agree, and 5 = somewhat agree; 6 = agree; 7 = strongly agree) was used to assess all items related to CBT centre service satisfaction and overall satisfaction in the survey questionnaire. According to [48], Likert scales are more reliable than single-item scales. The 5-point and 7-point Likert scales were used in this study as they are balanced on both the positive and negative sides of the feedback. Two different Likert scales were used as a procedural technique to minimise common method bias (CMB) [49]. Three CBT services cost-effectiveness construct items were adapted from [28], while three items of the CBT content variable were adopted from [50]. Five items of system quality and six service quality items were adopted from [51]. Also, three CBT centre service satisfaction items were adapted from [52], and three items of overall CBT satisfaction were taken from [53]. To ensure that questionnaire item meanings were not lost and that no misunderstandings occurred, the research team interviewed three experts and ran a pilot test with 100 students, changing questionnaire wording based on the test results.

3.2 Study Participants

A total of 600 questionnaires were distributed, and 455 (75.8%) useable were analysed using the structural equation technique. Male students outnumbered female students in this study, as shown in Table 1 (Male = 265; Female = 190). Regarding the type of secondary school the examinee attended, the number of public school students is higher than in private schools.

Table 1. Demography of the participants

Demographics	Items	Number	Percentage (%)
Gender	Male	265	58.2
	Female	190	41.8
Type of Sec. Sch.	Public	244	53.6
	Private	211	46.4
CBT Experience	Trained	371	81.5
	Untrained	84	18.5

3.3 Data collection

Students from three types of higher educational institutions (university, polytechnic, and college of education) were picked at random from higher education institutions in the North-western states of Nigeria. With the help of two trained research assistants, participation in the study was optional, and convenience sampling was conducted for the current students admitted through UTME CBT during the 2020/2021 session. Typically, non-probabilistic (convenience) sampling has been utilised in CBT studies [10, 54]. Students from various disciplines were considered to overcome the disadvantages of convenient sampling, including science, art, and others. Participants were told about the study's objective. The G*Power software was used to determine the smallest sample size for the study [55]. For a power of 0.95, a minimum sample size of 138 was required. Skewness and Kurtosis of multivariate data analysis showed that the scale data seemed to have a non-normal distribution; hence the data set was suitable for structural equation modelling (PLS-SEM) analysis [56].

4.0 Results

The hypothesised relationships were examined using structural equation modelling. The SmartPLS 3.0 software was utilised to evaluate and analyse the research model because of its statistical approach, including latent variable relations. Moreover, PLS is ideal for models with many constructs and sub-constructs [55]. Other factors that led the researchers to choose PLS-SEM over Covariance-SEM (CB-SEM) to analyse this study's data include:

(1) As its name suggests, PLS-SEM is a regression-based method that minimises the residual variances of endogenous constructs [57].

(2) ISSM is a relatively recent model established by Delone and Mclean [9] that is currently being empirically tested in the African culture. Due to its focus on prediction, PLS-SEM is the preferred method when the purpose of the research is theory development and prediction [57].

(3) The low requirements for measurement scales, sample size, and residual distributions make PLS-SEM an effective analysis method [58]. In reality, the skewed nature of our data indicates that it is not normally distributed.

(4) Hair et al. [58] conclude that when done effectively, PLS-SEM path modelling is really a "silver bullet" for estimating causal models in a variety of theoretical models and empirical data contexts.

First, we measure the model reliability and the convergent and discriminant validity of the constructs. Once the structural model has been established, the next stage is to examine it for its paths and identify relationships between model constructs.

(1) Measurement Model Evaluation

Two types of validity were used to evaluate the measurement model: convergent validity and discriminant validity.

(a) Convergent Validity

Fornell and Larcker [59] proposed three criteria for determining convergent validity for reflective constructs. They were as follows: Specifically, 1) indicator loadings should be statistically significant and greater than 0.70; 2) internal consistency (composite reliability/Cronbach's Alpha) should be greater than 0.70, and 3) the average variance extracted (AVE) for each construct should be greater than 0.50. However, indicator loadings between 0.5 and 0.7 are acceptable if the composite reliability (CR) and average variance extracted (AVE) values are greater than the previously mentioned thresholds [56]. These measures are reported in Table 2.

Table 2. Result of Measurement Model. NOTE: CR= Composite Reliability; AVE= Average Variance Extracted.

Construct	Items	Loadings	CR	AVE
CBT services Cost-effectiveness	CEF1	0.787	0.817	0.600
	CEF2	0.856		
	CEF3	0.669		
Overall CBT Satisfaction	OVER_SAT1	0.869	0.882	0.714
	OVER_SAT2	0.849		
	OVER_SAT3	0.816		
CBT Content	QCQ1	0.826	0.844	0.644
	QCQ2	0.815		
	QCQ3	0.764		
CBT Centre Service Satisfaction	SERV_SAT1	0.867	0.899	0.748
	SERV_SAT2	0.838		
	SERV_SAT3	0.889		
CBT Service Quality	SRQ1	0.811	0.894	0.627
	SRQ2	0.842		
	SRQ3	0.795		
	SRQ4	0.771		
	SRQ5	0.737		
CBT System Quality	SYQ1	0.788	0.882	0.555
	SYQ2	0.812		
	SYQ3	0.757		
	SYQ4	0.706		
	SYQ5	0.655		
	SYQ6	0.741		

As shown in Table 2, all the three conditions for convergent validity were met [56].

(b) Discriminant Validity

Fornell and Larcker [59] proposed that the square root of each construct's AVE should be greater than its highest correlation with any other construct to determine discriminant validity. In Table 3, the square root of the AVE is expressed diagonally. Compared to all other constructs in the model, the AVE value for each construct was greater than the correlation coefficient for that construct. However, recent research indicates that this metric is ineffective at determining discriminant validity. Henseler et al. [60] show, for example, that the Fornell and Larcker [59] criterion is weak, even when the indicator loadings on a construct differ by a small amount (e.g., all the indicator loadings are between 0.65 and 0.85). As a result, Henseler et al. [60] suggested substituting the Heterotrait-Monotrait correlation ratio (HTMT). The HTMT is the average correlations between items across constructs divided by the (geometric) mean of the average correlations between items within the same construct. When HTMT values are increased, discriminant validity issues arise. Henseler et al. [60] propose 0.90 as the cut-off value. Then, discriminant validity was assessed using the Fornell-Larcker [59] criterion and the Heterotrait-Monotrait (HTMT) approach. The discriminant validity of the data in Tables 3 and 4 was determined to be acceptable.

Table 3. Discriminant Validity: Fornell and Lacker [59]. NOTE: SERV_SAT = CBT Centre Service Satisfaction; CEF= CBT services Cost-effectiveness. OVER_SAT= Overall E-assessment Satisfaction; QCQ = Question Content; SRQ= Service Quality; SYQ= System Quality.

	SERV_SAT	QCQ	SERQ	CEF	SYQ	OVER_SAT
Construct						
SERV_SAT	**0.865**					
QCQ	0.468	**0.802**				
SRQ	0.557	0.613	**0.792**			
CEF	0.300	0.420	0.392	**0.775**		
SYQ	0.577	0.637	0.649	0.422	**0.745**	
OVER_SAT	0.672	0.483	0.531	0.383	0.663	**0.845**

Table 4. Discriminant Validity: HTMT. NOTE: SERV_SAT = CBT Centre Service Satisfaction; CEF= CBT Services Cost-effectiveness. OVER_SAT= Overall CBT Satisfaction; QCQ = CBT Content; SRQ= CBT Service Quality; SYQ= CBT System Quality

	SERV_SAT	QCQ	SERQ	CEF	SYQ	OVER_SAT
Construct						
SERV_SAT						
QCQ	0.603					
SRQ	0.658	0.782				
CEF	0.382	0.591	0.505			
SYQ	0.681	0.815	0.770	0.548		
OVER_SAT	0.819	0.630	0.643	0.505	0.803	

Common Method Bias (CMB) Kock [61] proposed a full collinearity test for detecting common method bias in data using a model that passes standard convergent and discriminant validity tests by confirmatory factor analysis. Thus, a full collinearity test was used to determine the PLS-common SEM method bias (CMB) [61]. Values for the Collinearity Statistics (VIF) should be less than 3.3.[61, 56]. As illustrated in Table 5, the VIF values for all factors were less than the 3.3 thresholds, indicating that the model is free of method bias.

Table 5. Collinearity (VIF) Statistics

	CBT Centre Service Satisfaction	Overall CBT Satisfaction
CBT Centre Service Satisfaction		1.648
CBT Content		1.968
CBT Service Quality	1.728	2.114
CBT Services Cost-Effectiveness		1.291
CBT System Quality	1.728	2.297
Overall CBT Satisfaction		

Table 6. Results of Structural Model. NOTE: SERV_SAT = CBT Centre Service Satisfaction; CEF= CBT services Cost-effectiveness; OVER_SAT= Overall CBT Satisfaction; QCQ = CBT Content; SRQ= CBT Service Quality; SYQ= CBT System Quality. $^{**}P < 0.05$.

Hypothesis	Direct/Indirect Effect	Path Coefficient (β)	t-value	P-Values	Decision
H1	SERV_SAT -> OVER_SAT	0.420	8.390	0.000	Supported
H2	SYQ-> SERV_SAT	0.374	5.905	0.000	Supported
H3	SRQ -> SERV_SAT	0.317	4.799	0.000	Supported
H4	SYQ -> OVER_SAT	0.362	6.024	0.000	Supported
H5	SRQ -> OVER_SAT	0.017	0.292	0.771	Not Supported
H6	QCQ-> OVER_SAT	0.006	0.065	0.948	Not Supported
H7	CEF -> OVER_SAT	0.094	2.017	0.044	Supported
H8	SRQ -> SERV_SAT-> OVER_SAT	0.133	4.492	0.000	Supported
H9	SYQ-> SERV_SAT-> OVER_SAT	0.157	4.653	0.000	Supported

(2) Structural Model Evaluation

The structural model investigated the proposed variables' direct/indirect independent relationships. The path coefficients (β) were calculated to determine the magnitude of the effects between variables. The level of significance of the path was determined using a bootstrapping procedure with 5000 samples (t-value) [56]. The study's hypotheses evaluation results are summarised in Table 6 and Figure 5. The findings demonstrate a statistically significant relationship between CBT centre service satisfaction (SERV_SAT) and overall CBT satisfaction (OVER_SAT) (H1).

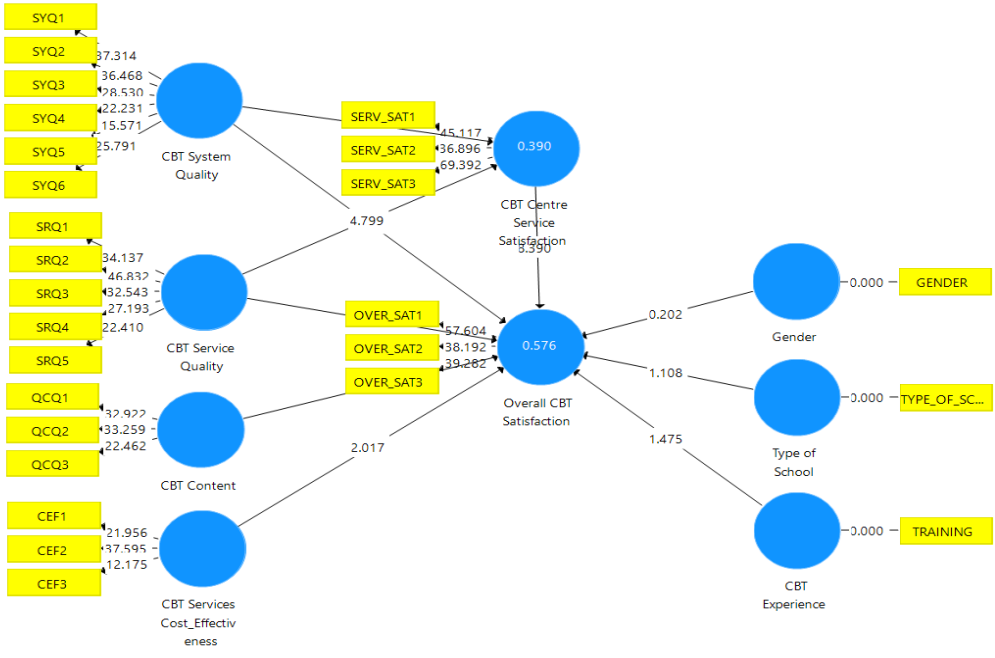

Fig. 5. Results of evaluation of the structural model.

Additionally, the findings corroborate the effect of CBT system quality (SYQ) on CBT centre service satisfaction (SERV_SAT) and overall CBT satisfaction (OVER_SAT) (H2 and H4). Additionally, the results indicated a significant relationship between CBT service quality (SRQ) and CBT centre service satisfaction (SERV SAT) (H3). Although the cost-effectiveness of CBT services was found to have a direct significant positive effect on overall satisfaction with the CBT system (OVER SAT) (H7), the results do not support the impact of CBT service quality (SRQ) and CBT content (QCQ) on overall satisfaction with the CBT system (OVERA_SAT) (H5 and H6).

The effect of CBT service quality (SRQ) on overall satisfaction with CBT (OVER_SAT) via CBT centre service satisfaction (SERV SAT) is shown in Table 6 (H8) as significant. As a result, the findings confirm that service satisfaction at CBT centres (SERV SAT) acts as a mediator between service quality (SRQ) and overall satisfaction with CBT (OVER_SAT). Additionally, the findings confirm the significant indirect effect of System Quality (SYQ) on overall satisfaction (OVER_SAT) via CBT centre service satisfaction (SERV_SAT) (H9), confirming the mediating role of CBT centre service satisfaction (SERV_SAT). Concerning control variables, from Fig. 5, we confirmed that none of them (gender, type of School and CBT experience) contribute to the overall satisfaction with CBT experience.

5 Discussion

CBT overall satisfaction was strongly influenced by CBT centre service satisfaction. Previous studies by [11] and [62] link service satisfaction to individual overall satisfaction with the specialised experience. This association is strongest in the model, which concluded that examinees' satisfaction with CBT centre services was crucial. It is feasible that examinees during the UTME CBT examination may pay more attention to the quality of services offered, notably technical assistance from CBT centre workers. As a result, a centre must have on-site examinee support.

Furthermore, the study found that CBT system quality favourably correlated with CBT centre satisfaction. This finding aligns with the results of [14], [33], [34], [63], and [22], who have discovered that the quality of the systems influences user satisfaction. In CBT, system quality is known as the quality of the software, hardware, infrastructure, power supply, and internet connectivity. Generally, examinees believe that CBT centre services are satisfactory when the quality of the ICT system, power supply, and internet connectivity meets their expectations. Additionally, the study indicated that the higher the CBT centre's service quality, the more satisfied examinees are with the CBT centre's services. This research has demonstrated that examinees' satisfaction with the services impacts their satisfaction with the service providers.

CBT system quality and overall CBT satisfaction have a direct relationship in the study, which agrees with [9, 40, 20]. As such, the overall satisfaction of the system is determined by the system's ease of use, system capability to meet examinees' requirements, system flexibility in terms of interaction, system speed and security, and other system features and functions. The results showed no direct relationship between CBT service quality and examinees' overall satisfaction with the CBT experience, consistent with prior research by [20]. To this conclusion, the organisation (JAMB) must develop a helpdesk and provide services and explanations online to aid future examinees in using the CBT.

Additionally, the SEM analysis found that the CBT's question content did not affect the examinee's overall satisfaction. This study is consistent with [64], who proved that the contents of e-training do not affect user satisfaction. The following explanations have been proposed: The profiles of the examinees provide a plausible explanation for this. According to the profile, examinees have diverse backgrounds, and their perceptions of the content could vary. Also, many admitted students were not given the courses of

their choice due to poor exam results or other reasons deemed appropriate by the absorbing institutions. Thus, the content of the questions was not linked to their studies. The cost-effectiveness of CBT services significantly influenced overall satisfaction. This result showed that different fees charged by CBT centres led to a stronger relationship between the cost-effectiveness of CBT services and overall CBT satisfaction [42].

Nevertheless, the primary purpose of this study is to find out how examinees' satisfaction with CBT centre service influences the relationship between the system service quality and overall satisfaction with the CBT system. Accordingly, service quality indirectly affects overall satisfaction via CBT centre service satisfaction, although the direct effect is insignificant. Thus, when service quality increases, CBT centre satisfaction increases, increasing overall satisfaction. Furthermore, the results found a strong indirect impact of system quality on CBT satisfaction, combined with the mediating role of CBT centre service satisfaction. System quality had a robust direct effect on overall CBT satisfaction rather than an indirect effect. As a result, CBT centre service satisfaction mediates between system quality and overall CBT satisfaction. Improving system quality also indirectly raises overall CBT satisfaction by increasing the quality of the services delivered at the CBT centres.

This study showed that users' satisfaction with various stages of the examination process influences their overall satisfaction judgment. CBT satisfaction is affected by CBT centre service satisfaction, which complements system quality, CBT services cost-effectiveness, and, indirectly, service quality. As a result, our understanding of how examinees develop their satisfaction has improved.

6 Conclusion, Implications, and Limitations

This study explored the mediating effect of CBT centre service satisfaction on the link between CBT quality factors (e.g., system quality and service quality) and overall CBT satisfaction. Previous research has investigated the impact of quality factors on the examinee's CBT satisfaction. As far as we know, the role of CBT centre service satisfaction as a mediator remains unexplored, and few studies compare the direct and indirect effects of quality factors on the overall satisfaction of CBT. Therefore, this is the study's significant theoretical contribution. CBT system quality directly affects overall satisfaction than its indirect effect when it is mediated by CBT centre service satisfaction. The indirect impact of CBT service quality on overall CBT satisfaction is more substantial through the linkage of CBT centre service satisfaction. The theoretical finding emphasises the importance of quality factors' direct and indirect effects on overall satisfaction. Additionally, this study was conducted in Nigeria – a developing context that has largely been overlooked, particularly in CBT centre service satisfaction. Third, the effect of the cost-effectiveness of CBT services on overall satisfaction was overlooked by previous CBT researchers; as a result, this study made a second theoretical contribution by examining this relationship.

These findings suggest some practical implications. The CBT's overall satisfaction was directly and indirectly affected by the CBT system's quality. Satisfaction is crucial to developing a successful computer-based assessment in Nigeria. In addition, more

resources must be invested in system quality, notably in the hardware and infrastructure; fees/charges at various CBT centres should be unified and subsidised. Also indicated by the CBT centre service satisfaction mediator study, there were higher direct impacts of some quality components (e.g., system quality) and higher indirect effects of some quality aspects (e.g., service quality). This indicates that CBT centre managers should pay attention to quality factors to increase overall satisfaction and that CBT centre satisfaction impacts other relationship dynamics. The study's findings highlighted the critical role of CBT centre satisfaction in attaining overall CBT satisfaction. The CBT centres should maximise examinees' satisfaction by enhancing a conducive environment and services for successful CBT exercises.

In this context, this study is novel as it analyses how the overall satisfaction of CBT services is connected to several quality aspects. Research has its limits still. First, this study looked at the quality effects of various factors (for example, system quality and service quality). Other aspects could be examined in the future (e.g., support system quality, invigilator quality, and examinee quality). Second, this study found that school CBT centre satisfaction mediates the relationship between CBT and CBT utilisation. Future studies should be undertaken across regions and within various types of educational institutions to generalise the findings. While avoiding causation issues, the CMB test was utilised in this work. However, the model's application in different locations and contexts will help build the hypothesised links in the future. Lastly, future studies should evaluate the direct and indirect relationships across time to provide a longitudinal approach to CBT satisfaction research. With this, the limitations of a cross-sectional design and the risk of self-selection bias are somewhat reduced [49].

Further qualitative research should be performed to unearth the reasons for these unsupported relationships. In addition, tests to determine the impact of demographic variables such as gender, school type, and CBT experience were performed. These variables were not found to impact the proposed relationships of interest significantly and are thus not shown or discussed further.

References

1. Fagbola T. M., Adigun A. A., Oke A. O.: Computer-Based Test (Cbt) System For University Academic Enterprise Examination, International Journal of Scientific and Technology Research, vol. 2, no. 8, pp. 336-342, (2013)
2. Salah W., Ramadan M., Ahmed H.: Effectiveness of E-Assessment in Quantitative Modules, COVID-19 Consequences: A Case Study by the British University in Egyp, International Conference on Interactive Collaborative and Blended Learning, pp. 466-477, (2021) https://doi.org/10.1007/978-3-030-67209-6_50
3. Elsalem L., Al-azzam N., Jum A. A., Obeidat N., Mahmoud A., Kheirallah K. A.: Stress and behavioral changes with remote E-exams during the Covid-19 pandemic: A cross-sectional study among undergraduates of medical sciences, Annals of Medicine and Surgery, vol. 60, pp, 271-279, (2020). https://doi.org/10.1016/j.amsu.2020.10.058
4. Nwankwo S. N., Nwosu N. N., Oputa R. E.: Administration of Computer-Based Testing (CBT) For University Admissions in Imo State: Problems and Prospects, Journal of Resourcefulness and Distinction, vol. 13, no. 1, pp. 24- 36, (2016)
5. Chen R.S., Hsieh K. K., Tsai C.: The implementation of face recognition technology and its effect on e-quiz credibility, Asian Journal on Quality, vol. 11, no. 2, pp. 125-136, (2010)

https://doi.org/10.1108/15982681011075934
6. Vairamuthu S., Anouncia S. M.: Reconnoitering Students' Satisfaction of an Online Based Assessment System to Improve Usability using PSO: An Examination into a Problem Solving and Programming Course, Engineering, Technology and Applied Science Research, vol. 6, no. 5, pp. 1207-1211, (2016) https://doi.org/10.48084/etasr.800
7. Dobre I.: Students' Satisfaction Analysis Related To An E-Assessment System That Uses Natural Language Processing, The 11th International Scientific Conference eLearning and Software for Education, pp. 21-28 (2015) https://doi.org/10.12753/2066-026X-13-131
8. Bahati B., Fors U., Hansen P., Nouri J., Mukama E.: Measuring learner satisfaction with formative e-assessment strategies, International Journal of Emerging Technologies in Learning, vol. 14, no. 7, pp. 61-79, (2019) https://doi.org/10.3991/ijet.v14i07.9120
9. DeLone W. H., McLean E. R.: The DeLone and McLean model of information systems success: A ten-year update, Journal of Management Information Systems, vol. 19, no. 4, pp. 9-30, (2003). https://doi.org/10.1080/07421222.2003.11045748
10. Lin J. W., Lai Y. C.: User acceptance model of computer-based assessment: Moderating effect of self-regulation, Australasian Journal of Educational Technology, vol. 35, no. 1, pp. 163-176, (2019) https://doi.org/10.14742/ajet.4684
11. Wang Y., So K. K. F., Sparks B. A.: Technology Readiness and Customer Satisfaction with Travel Technologies: A Cross-Country Investigation, Journal of Travel Research, vol. 56, no. 5, 563-577 (2017) https://doi.org/10.1177/0047287516657891
12. Ramayah T., Nejati M., Shafaei A.: Modeling predictors of blog stickiness and retention by university students, Malaysian Journal of Library and Information Science, vol. 20, no. 3, pp. 15-27, (2015)
13. Cheng Y. M.: Effects of quality antecedents on e-learning acceptance, Internet Research, vol. 22, no. 3, pp. 361-390, (2012) https://doi.org/10.1108/10662241211235699
14. Shin D. H.: Effect of the customer experience on satisfaction with smartphones: Assessing smart satisfaction index with partial least squares, Telecommunications Policy, vol. 39, no. 8, pp. 627-641, (2015) https://doi.org/10.1016/j.telpol.2014.10.001
15. Hamilton S., Chervany N. L.: Evaluating information system effectiveness - Part I: Comparing evaluation approaches, MIS Quarterly: Management Information Systems, vol. 5, no. 3, pp. 55-69, (1981) https://doi.org/10.2307/249291
16. Bailey J. E., Pearson S. W.: Development of a Tool for Measuring and Analysing Computer User Satisfaction, Management Science, vol. 29, no. 5, pp. 530-545, (1983) https://doi.org/10.1287/mnsc.29.5.530
17. Fluck A., Adebayo O. S., Abdulhamid S. M.: Secure E-Examination Systems Compared: Case Studies from Two Countries, Journal of Information Technology Education: Innovations in Practice, vol. 16, pp. 107-125, (2017) https://doi.org/10.28945/3705
18. Sanni A. A., Mohammad M. F.: Computer-Based Testing (CBT): An Assessment of Student Perception of JAMB UTME in Nigeria, Computing, Information Systems, Development Informatics and Allied Research Journal, vol. 6, no. 2, pp. 1-16, (2015)
19. Mohammadi H.: Investigating users' perspectives on e-learning: An integration of TAM and IS success model, Telematics and Informatics, vol. 32, no. 4, pp. 701-719, (2015) https://doi.org/10.1016/j.tele.2015.03.002

20. Seta H. Wati B., Muliawati T., A., Hidayanto A. N.: E-learning success model: An extension of delone and mclean IS' success model, Indonesian Journal of Electrical Engineering and Informatics, vol. 6, no. 3, pp. 281~291, (2018) https://doi.org/10.11591/ijeei.v6i3.505
21. Hassanzadeh A., Kanaani F., Elahi S.: A model for measuring e-learning systems success in universities, Expert Systems with Applications, vol. 39, no. 12, pp. 10959-10966, (2012) https://doi.org/10.1016/j.eswa.2012.03.028
22. Kim M., Chang Y., Park M. C., Lee J.: The effects of service interactivity on the satisfaction and the loyalty of smartphone users, Telematics and Informatics, 32(4), 949-960, (2015) https://doi.org/10.1016/j.tele.2015.05.003
23. Economides A. A.: Computer adaptive testing quality requirements, World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education, 288-295, (2005)
24. Kuikka M., Kitola M., Laakso M. J.: Challenges when introducing electronic exams, Research in Learning Technology, vol. 22, (2014) https://doi.org/10.3402/rlt.v22.22817
25. Loewenberger P., Bull J.: Cost-effectiveness analysis of computer-based assessment, Research in Learning Technology, vol. 11, no. 2, pp. 23-45, (2016) https://doi.org/10.1080/0968776030110204
26. Economides A. A., Roupas C.: Evaluation of Computer Adaptive Testing Systems, International Journal of Web-Based Learning and Teaching Technologies (IJWLTT), vol. 2, no. 1, pp. 70-87, (2007) https://doi.org/10.4018/jwltt.2007010104
27. Fluck A.: Implementation of on-campus digital examination practices, In Transforming Assessment in a Digital Era Revolutionising assessment approaches across Australian universities, pp. 1-8, (2013)
28. Kim S. C., Yoon D., Han E. K.: Antecedents of mobile app usage among smartphone users, Journal of Marketing Communications, vol. 22, no. 6, pp. 653-670, (2016) https://doi.org/10.1080/13527266.2014.951065
29. Adepoju O. A.: An Evaluation of the Challenges Encountered in the First General Computer Based Test in Nigeria, Pakistan Journal of Educational Research and Evaluation, vol. 1, no. 1, pp. 1-13, (2016)
30. Au N., Ngai E. W. T., Cheng T. C. E.: A critical review of end-user information system satisfaction research and a new research framework, Omega, vol. 30, no. 6, pp. 451-478, (2002) https://doi.org/10.1016/S0305-0483(02)00054-3
31. Petter S., DeLone W., McLean E.: Measuring information systems success: Models, dimensions, measures, and interrelationships, European Journal of Information Systems, vol. 17, no. 3, pp. 236-263, (2008) https://doi.org/10.1057/ejis.2008.15
32. Eiamkanchanalai S., Assarut N.: Service Quality and Satisfaction of Traditional and Technology-Enhanced Services, In Academy of Marketing Science Annual Conference, pp. 303-315, (2017) https://doi.org/10.1007/978-3-319-66023-3
33. Alzabi T., Rind M. M., Alenzi K., Solangi Z.: An Empirical Investigation Of Factors Influencing User Satisfaction With Online Services Of Mobile Communication Providers: Study of Kuwait, Sindh University Research Journal, vol. 48, no. 4D, pp. 103-109, (2016)
34. Noh Y., and Chang R.: A Study on the Factors Influencing the Satisfaction of Online Service System on the International Research Cooperation, International Journal of Knowledge Content Development and Technology, vol. 10, no. 2, pp. 71-90 (2020)
35. Subrahmanyam A.: Relationship between service quality, satisfaction, motivation, and loyalty, Quality Assurance in Education, vol. 25, no. 2, pp. 171-188 (2017) .https://doi.org/10.1108/QAE-04-2013-0016
36. Lee F. H., Wu W. Y.: Moderating effects of technology acceptance perspectives on e-service quality formation: Evidence from airline websites in Taiwan, Expert Systems with Applications, vol. 38, no. 6, pp. 7766-7773 (2011) https://doi.org/10.1016/j.eswa.2010.12.131

37. Lin J. S. C., Hsieh P. L.: The role of technology readiness in customers' perception and adoption of self-service technologies, International Journal of Service Industry Management, vol. 17, no. 5, pp. 497-517 (2006) https://doi.org/10.1108/09564230610689795
38. Fang Y. H., Chiu C. M., Wang E. T. G.: Understanding customers' satisfaction and repurchase intentions: An integration of IS success model, trust, and justice, Internet Research, vol. 21, no. 4, pp. 479-503 (2011) https://doi.org/10.1108/10662241111158335
39. Ramayah T., Lee J. W. C.: System characteristics, satisfaction, and e-learning usage: A structural equation model (SEM), Turkish Online Journal of Educational Technology, vol. 11, no. 2, pp. 196-206 (2012)
40. Al-Mamary Y. H., Shamsuddin A., Hamid N. A. A., Al-Maamari M. H., Adoption of management information systems in the context of Yemeni organisations: A structural equation modeling approach, Journal of Digital Information Management, vol. 13, no. 6, pp. 429-444 (2015)
41. Almarashdeh I.: Sharing instructors' experience of learning management system: A technology perspective of user satisfaction in a distance learning course, Computers in Human Behavior, vol. 63, pp. 249-255 (2016) https://doi.org/10.1016/j.chb.2016.05.013
42. Kumbhar V.: Factors affecting on customers' satisfaction an empirical investigation of ATM service, International Journal of Business Economics and Management Research, vol. 2, no. 3, pp. 144-156 (2011)
43. Atmojo J. T., Sudaryanto W. T., Widiyanto A., Ernawati A. D., Arradini D.: Telemedicine, Cost Effectiveness, and Patients Satisfaction : A Systematic Review. Journal of Health Policy and Management, Vol. 5, no. 2, pp, 103-107, (2020) https://doi.org/10.26911/thejhpm.2020.05.02.02
44. Kumbhar V. M.: Factors affecting the customer satisfaction in e-banking: some evidence from Indian banks, Management Research and Practice, vol. 3, no. 4, pp. 1-14, (2011b)
45. Agarwal R., Prasad J.: Are individual differences germane to the acceptance of new information technologies?, Decis. Sci., vol. 30, no. 2, pp. 361-391 (1999) htstp://doi.org/10.1111/j.1540-5915.1999.tb01614.x
46. Venkatesh V., Morris M. G.: Why don't men stop asking for directions? Gender , Social Influence and their role in society, MIS Q., vol. 24, no. 1, pp. 115-139 (2000) https://doi.org/10.2307/3250981
47. Sibona C., Choi J. H.: Factors Affecting End-User Satisfaction on Facebook, Artif. Intell., no. 1989, pp. 575-578 (2012)
48. Nunnally J.: Psychometric methods. McGraw- Hill, New York, NY. (1978)
49. Podsakoff P. M., MacKenzie S. B., Podsakoff N. P.: Sources of Method Bias in Social Science Research and Recommendations on How to Control It, Annual Review of Psychology, vol. 63, no. 1, pp. 539-569 (2012) https://doi.org/10.1146/annurev-psych-120710-100452
50. Nikou S. A., Economides A. A.: Mobile-based assessment: Investigating the factors that influence behavioral intention to use, Computers and Education, vol. 109, pp. 56-73, (2017) https://doi.org/10.1016/j.compedu.2017.02.005
51. Holsapple C. W., Lee-Post A.: Defining, Assessing, and Promoting E-Learning Success: An Information Systems Perspective, Decision Sciences Journal of Innovative Education, vol. 4, no. 1, pp. 67-85 (2006) https://doi.org/10.1111/j.1540-4609.2006.00102.x
52. Xu F., Du J. T.: Factors influencing users' satisfaction and loyalty to digital libraries in Chinese universities, Computers in Human Behavior, vol. 83, pp. 64-72 (2018) https://doi.org/10.1016/j.chb.2018.01.029
53. Dang Y., Zhang Y., Ravindran S., Osmonbekov T.: Examining student satisfaction and gender differences in technology-supported, blended learning, Journal of Information Systems Education, vol. 27, no. 2, pp, 119-130 (2016)

54. Okocha F., Toluwani T. E., Owolabi S.: Student Perception and Acceptance of Computer-Based Testing : A Case Study of Landmark University Students, Journal of Digital Innovations and Contemp Res. In Sc., Eng and Tech, vol. 5, no. 1,pp. 25-32 (2017)
55. Hair J. F., Risher J. J., Sarstedt M., Ringle C. M.: When to use and how to report the results of PLS-SEM, In European Business Review, Vol. 31, no. 1, pp. 2-24 (2019) https://doi.org/10.1108/EBR-11-2018-0203
56. Hair J. F., Hult G. T. M., Ringle C. M., Sarstedt M.: A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), SAGE. Los Angeles, CA, (2017)
57. Hair J. F., Ringle C. M., Sarstedt M.: PLS-SEM: Indeed, a silver bullet, J. Mark. Theory Pract., vol. 19, no. 2, pp. 139-151 (2011) https://doi.org/10.2753/MTP1069-6679190202
58. Hair J. F., Matthews L. M., . Matthews R. L, Sarstedt M.: PLS-SEM or CB-SEM: updated guidelines on which method to use, Int. J. Multivar. Data Anal., vol. 1, no. 2, p. 107 (2017) https://doi.org/10.1504/IJMDA.2017.087624
59. Fornell C., Larcker F. D.: Evaluating Structural Equation Models with Unobservable Variables and Measurement Error, Journal of Marketing Research, vol. 18, no. 1, pp. 39-50 (1981) https://doi.org/10.1177/002224378101800104
60. Henseler J., Ringle C. M., Sarstedt M.: A new criterion for assessing discriminant validity in variance-based structural equation modelling, Journal of the academy of marketing science, vol. 43, no. 1 pp. 115-135 (2015) https://doi.org/10.1007/s11747-014-0403-8
61. Kock N.: Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach, International Journal of E-Collaboration, vol. 11, no. 4, pp. 1-10 (2015) https://doi.org/10.4018/ijec.2015100101
62. Hoyer W. D., Herrmann A., Huber F.: When Buyers Also Sell : The Implications of Pricing Policies for Customer Satisfaction, Psychology and Marketing, vol. 19, no. 4, pp. 329-355 (2002) https://doi.org/10.1002/mar.10013
63. Zhou T.: An empirical examination of continuance intention of mobile payment services, Decision Support Systems, vol. 54, no. 2, pp. 1085-1091 (2013) https://doi.org/10.1016/j.dss.2012.10.034
64. Ramayah T., Ahmad N. H., Hong T. S.: An assessment of e-training effectiveness in multinational companies in Malaysia, Educational Technology and Society, vol. 15, no. 2, pp. 125-137 (2012)

Appendix

Questionnaire items

Items	Questions
	CBT services cost-effectiveness
CEF1	I find the overall prices of the CBT services inexpensive.
CEF2	The CBT services deserve the current price.
CEF3	I find the CBT services cost-effective.
	Overall CBT satisfaction
OVER_SAT1	Overall, taking this CBT make me feel very satisfied.
OVER_SAT2	Overall, taking this CBT make me feel very pleased.
OVER_SAT3	Overall, taking this CBT make me very delighted.
	CBT content
QCQ1	The CBT's questions were clear and understandable
QCQ2	The CBT's questions were relevant to the subjects' syllabus
QCQ3	The CBT's questions were useful for my course
	CBT centre service satisfaction
SERV_SAT1	I feel satisfied with the services provided by the CBT centre staff.
SERV_SAT2	I feel contented with the services provided by the CBT centre staff.
SERV_SAT3	I like the services provided by the CBT centre staff.
	CBT Service quality
SRQ1	The CBT centre service staff promptly attend to our request.
SRQ2	The CBT centre service staff responds to our needs timely and satisfactorily.
SRQ3	The CBT centre service staff understands the specific needs of the examinees.
SRQ4	The CBT centre service staff know their work very well.
SRQ5	The CBT centre service staff are available and cooperative when facing an error with the CBT system.
	CBT System quality
SYQ1	The CBT system is easy to use.
SYQ2	The CBT system is user-friendly.
SYQ3	The CBT system is stable.
SYQ4	The CBT system protects my information from unauthorised access by logging in only with my account and password account and password account and password
SYQ5	The CBT system runs very fast.
SYQ6	The CBT system responds quickly to my request.