



Assessment of User Satisfaction with Educational Management Information System in Southwestern Nigerian Universities

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ABSTRACT

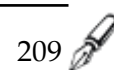
User satisfaction is a significant factor in ensuring the effective implementation and long-term viability of Educational Management Information Systems (EMIS) in higher education. This study examines the level of satisfaction among EMIS users in selected Nigerian universities, with specific attention to service quality, information quality, system quality, outcome expectations, and organizational factors. A mixed-methods approach was adopted, combining questionnaire surveys and semi-structured interviews among EMIS officers from state ministries of education, ICT personnel, university administrators, and students across six universities in Southwestern Nigeria. Quantitatively, three hundred copies of the questionnaire were administered among the students and staff (technology users) of the selected educational institutions using the EMIS technology and also among EMIS officers at the ministry of education in each of the states of the zone. Quantitative data were analyzed using mean ratings, while qualitative interview responses were analyzed thematically to provide contextual insight into user experiences. The mean ratings indicated that users were extremely satisfied with all the examined variables. Although this study's emphasis is on user satisfaction rather than administrative efficiency, it concluded that strengthening information quality, improving technical support services, and enhancing institutional commitment are essential for enhancing user satisfaction for sustainable use of EMIS in Nigerian universities.



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INTRODUCTION

The Educational Management Information System (EMIS) supports service delivery, planning, and monitoring in education by enabling teaching and learning, administration, and evidence-based decision-making. Implementation challenges persist. Higher education governance increasingly relies on Educational Management Information Systems (EMIS). Universities use digital tools to manage student data, allocate resources, and inform decisions. Yet, a gap persists between collecting data and effectively using it for staffing, learning opportunities, and resource allocation. However, this gap is attributed to structural issues in EMIS, such as standardized designs and compliance incentives that favor international reporting over national governance, and the marginalization of local knowledge and data rights (El Mazbough et al., 2025). Although much of the literature focuses on national governance, successful EMIS is ultimately dependent on user participation and institutional assessment.



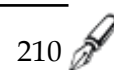
The user-level adoption factors, such as perceived usefulness and ease of use, are the key determinants of EMIS effectiveness. It has been found to influence perceptions of data timeliness and reliability (Saad & Che Daud, 2020). These factors are crucial because they demonstrate how EMIS may boost budget allocation, teacher deployment, and infrastructure planning through procedural changes, improved user roles, and greater stakeholder participation. (Arroyan & Subekti, 2021). Thus, advancements in teaching, administration, and decision-making are closely linked to user interaction with and acceptance of EMIS, despite persistent implementation challenges.

Educational Management Information Systems (EMIS) are essential for improving service delivery, planning, and monitoring in the education sector. Recent studies demonstrate that EMIS contributes to advancements in teaching, school administration, and data-driven decision-making, although implementation challenges remain. Educational Management Information Systems (EMIS) collect, process, and disseminate institutional data to assist educational system planning, monitoring, and decision-making (UNESCO, 2017; Asio et al., 2022). EMIS in higher education institutions improves administrative efficiency and access to institutional information, allowing administrators and other stakeholders to make evidence-based decisions (Bojte, 2019). EMIS helps educational institutions improve governance, transparency, and resource management by providing timely and reliable information about students, staff, finances, and facilities (UNESCO, 2015a; UNESCO, 2017). EMIS integrates, processes, and disseminates educational data to enable planning and decision-making across all levels of the educational system (Asio et al., 2022).

This study examines three key quality factors influencing system effectiveness: information quality, system quality, and service quality. These factors significantly shape user satisfaction and overall information system success by influencing how users perceive, engage with, and ultimately accept the system. Having in mind that information quality relates to the accuracy, completeness, and relevance of data, while system quality addresses reliability, usability, and performance. However, service quality is assessed by the availability of technical support and the responsiveness of service providers (Ho et al., 2019). Given that some benefits were identified, previous studies in developing countries have consistently reported ongoing challenges associated with EMIS. These include inadequate infrastructure, limited ICT competencies, and inconsistencies in data quality (Ntorukiri et al., 2022; Mohammadi et al., 2021; Zarei & Mohammadi, 2022).

This study defines user satisfaction as a comprehensive assessment of EMIS, including factors such as system quality, information quality, service quality, expected outcomes, and organizational influences. Prior research indicates that information quality—especially regarding timeliness, accuracy, and relevance—and system quality, which covers reliability and ease of use, are among the strongest indicators of user satisfaction (Danso et al., 2021; Egbe, 2022). While service quality remains important, its impact might diminish when both system and information quality are already high. Additionally, increased user satisfaction and effective system utilization have been linked to better decision-making, planning, and administrative performance, though these connections should be viewed with some caution.

Helal et al. (2021) investigated how EMIS supports teaching and learning during disruptions, especially during the COVID-19 pandemic. Their results show that EMIS had a positive impact on both student and teacher performance, emphasizing its importance for maintaining instructional activities in difficult circumstances. It means that in this case, EMIS can be used to enhance educational outcomes. Nonetheless, the research also had contrary findings on the administrative performance, raising concerns on the cost and complexity of the system with benefits not necessarily spread uniformly across all users. Also, these results are limited by the fact that the sample size is small and that it was performed in one geopolitical zone of the country only, which restricts the generalizability of results. These drawbacks



underscore the necessity of further studies on the effectiveness of EMIS, especially among the different users in the remaining geopolitical zones of the country.

In the same vein, Mbawala et al. (2024) have investigated the application of EMIS in Tanzanian secondary schools by conducting interviews with five principals. Although the target was secondary education, the study provided useful information on the impact of infrastructural and technical issues on the EMIS implementation in developing nations. It confirmed that EMIS is a reliable tool to handle academic processes, attendance, enrollment, financial (through FFARS), and communication. However, it was also found out that the lack of ICT skills, inadequate equipment and internet connectivity, frequent power outages, unintuitive software, and low interoperability of the systems were also challenges. These findings highlight the necessity to continue investing in ICT infrastructure, building capacity, user-friendly system design, and measures that focus on offline capacities and cost management in the long run.

Kuswara et al. (2021) applied the CIPP evaluation model of Stufflebeam and the POAC management model developed by George R. Terry to assess EMIS implementation in schools in Indonesia. The research established that there was an enhancement in classroom operations and the quality of learning services; however, they also identified shortcomings in planning and organizational framework, particularly regarding specialized roles, budgeting, and scheduling. The lack of technical and human resources and the common absence of IT staff under supervision aggravated implementation challenges. The authors recommended the improvement of infrastructure, system integration, continuous teachers' training, and enhanced management practices to solve these problems. They further emphasized the need to continually evaluate the system impact, effectiveness, sustainability, and long-term change. The experience in different settings suggests that under proper implementation, EMIS may improve the decision-making process, efficiency, and transparency (Shah, 2014; Martins *et al.*, 2019).

EMIS contributes to the development of educational policies and governance, as it provides timely information to plan, monitor, and evaluate (Bojte, 2019; Sridevy, 2020). Nonetheless, the system still faces a number of challenges, including ICT constraints, shortages of qualified personnel, governance, and irregular implementation (Sintayehu & Menber, 2019). To address these challenges, some strategies may be suggested, such as improved technical integration, such as the connection between EMIS and learning management systems; enhanced professional growth; and more intensive involvement of stakeholders to enhance the use of data.

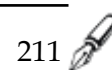
Educational Management Information Systems remain important tools for supporting evidence-based decision-making in educational settings. Recent studies continue to show that information quality, system quality, and service quality are key predictors of user satisfaction and overall system success in higher education contexts (Widyaningrum et al., 2024; Atukunda et al., 2024).

Accordingly, this study examines user satisfaction with EMIS in selected Nigerian universities by focusing on user-related factors such as perceptions of system adequacy, reliability, and accessibility and how these influence overall satisfaction levels. The study, therefore, investigates the extent to which these factors shape user satisfaction with EMIS in Nigerian university settings.

Literature Review

Components and Infrastructure for EMIS

Educational Management Information Systems (EMIS) are built on the fundamental components of Management Information Systems (MIS), namely software, hardware, data, procedures, and people. These components operate together to generate meaningful information that supports organizational decision-making processes (Harerimana, 2021). Within



educational settings, EMIS applies these elements to enable the effective collection, processing, and dissemination of institutional data.

Hardware includes physical parts of the system, including computers, storage devices, and communication devices. However, the EMIS applications that are managing and processing data are part of the software. Data means raw and unprocessed information that is utilized in reporting. Procedures are made up of rules and guidelines that guide the operation and maintenance of the system. The human aspect is more than just the users; the administrators and the technical staff are also involved in managing the systems. Thus, when all these elements are put together, they form a complete system that is an integration of technology tools, organizational processes, and human interaction (Davies, 2009).

Thus, EMIS is an organizational information system that converts the data about the operations into actions to facilitate the planning, monitoring, and decision-making. Increased accessibility, scalability, cost-effectiveness, and increased availability and scalability of EMIS through the use of web-based platforms and open-source applications have been made possible with the improvement of information and communication technology (Bernbaum & Moses, 2011). These innovations have made data collection, management, and distribution available at different levels of education administration easier.

Also, access to EMIS has been enhanced using mobile technologies such as smartphones, particularly in resource-constrained environments. SMS and specialized applications are tools that simplify data transmission, even in rural areas with poor infrastructure (Bernbaum & Moses, 2011). In a broader sense, MIS infrastructure involves not just the technical components but also application systems and users who utilize them to offer both the operational and administrative information services (Harerimana, 2021).

Moreover, EMIS relies on an integrated system that integrates equipment, software, data sources, business processes, talented employees, and other infrastructures such as the internet and power supply. When these components are properly combined, the system provides the right information, stability in performance, and correct user support – all of which increase user satisfaction.

The five elements depicted in Figure 1 highlight the fact that MIS does not have a narrow scope of technological innovations, including hardware and software, but also it includes processes, information, and individuals. In this regard, an information system may be perceived as a coordinated mechanism that aids in communication and interaction in an organization.

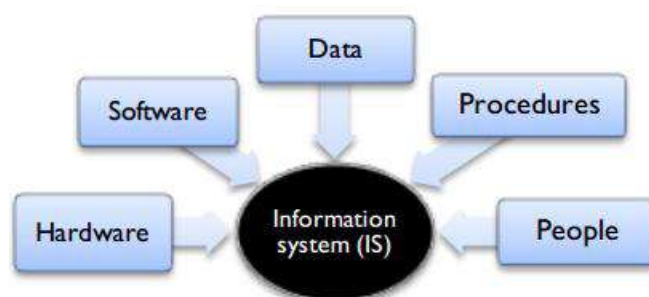


Figure 1: Components of EMIS (Harerimana, 2021)

Besides, studies have always shown that user satisfaction is one of the key indicators of information systems success, especially in higher education. EMIS is relied on by students, academic staff, and administrative personnel in carrying out academic activities, operational activities, and decision-making. The quality of information, system reliability, and availability of technical support are some of the factors that influence their levels of satisfaction. Research in

the university indicates that these aspects of quality have a strong impact on user perceptions and their further use of the system (Wixom & Todd, 2005; Atukunda et al., 2024).

According to the available literature, EMIS can improve efficiency, transparency, and service delivery in educational institutions (Shah, 2014; Martins *et al.*, 2019). It also supports evidence-based policymaking and institutional decision-making because it provides timely and reliable data to plan and monitor (Bojte, 2019; Sridevy, 2020). However, many barriers prevent the implementation of EMIS in the global context that include insufficient ICT infrastructure, lack of qualified staff, and governance challenges (Sintayehu & Menber, 2019). The solution to these challenges is continuous professional development, the external and organizational support system, and more effective integration with other digital systems.

Despite the rising studies on information systems and user satisfaction, much remains to be done in the research on EMIS in Nigerian universities. The majority of the existing research is either on the general performance of the system or is carried out under various educational or geographical environments not relevant to Nigerian higher education. There is thus limited empirical evidence on how the main satisfaction-determining variables, such as information quality, system quality, and service quality, influence user satisfaction in different stakeholder groups, such as students, academic staff, and administrative personnel. Also, user experience disparities in the university setting have not been studied extensively.

Based on these gaps, it can be concluded that more context-dependent measurement of the EMIS user satisfaction among Nigerian universities is required. This research addresses this requirement by examining the relationship between system and information quality and service quality as pertaining to user satisfaction among different groups of EMIS users in a university setting. In other words, considering higher education institutions in Nigeria, the study provides a more context-specifically relevant and empirically based insight into what determines user satisfaction when it comes to EMIS.

Technology Acceptance Model (TAM)

The study was also guided by the technology acceptance model (TAM) developed by Davis in 1989 (Figure 2). This model evolved from the notion of reasoned action, intended to explain and predict people's behavior in specific situations. According to this theory, a person's behavior depends on his intentions, which are derived from his attitudes and subjective norms. The technology acceptance model explains user acceptance of technology in terms of attitudes (Davis, 1989). This is a theory of information systems that explains how consumers come to accept and use technology.

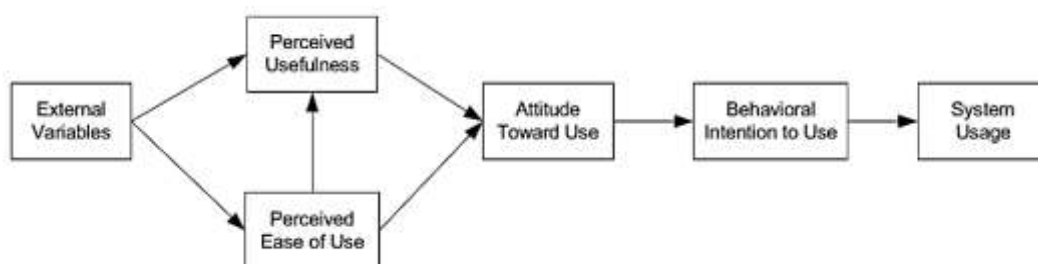


Figure 2. Technology Acceptance Model (Davis 1989 cited in (Shih-Chih et al., 2011)

The Technology Acceptance Model (TAM) offers a useful framework to better understand user participation in Educational Management Information Systems (EMIS), particularly regarding perceived usefulness and perceived ease of use. These variables determine the satisfaction of users with using and interacting with EMIS. User satisfaction has been extensively deemed as one of the primary pointers of system satisfaction since it serves as an

indicator of how far a system has achieved or not achieved regarding EMIS (Afthanorhan et al., 2019).

Thus, EMIS plays an essential role in enabling the use of data to make decisions within the higher education domain, as a user who finds the system useful and user-friendly will take the chance to use it more frequently and take advantage of its benefits. Also, the satisfied users are more likely to integrate EMIS into their workflow when it comes to reporting, policymaking, and assessment of student learning outcomes (World Bank, 2014). As a result, technology acceptance (such as EMIS acceptance) and user satisfaction have a close relationship, as they determine the level of support that EMIS provides to university governance, such as planning, monitoring, and decision-making.

Most educational institutions have continuously experienced issues in the form of inaccuracies in the data, limited access to the systems, and the failure to utilize the available information successfully (UNESCO, 2017). These issues may result in poor or poorly informed choices by school leaders (Ojiemhenkele & Ofangbonmu, 2024). Educational Management Information Systems (EMIS) are thus used to collect, process, and distribute institutional data, which is critical in evidence-based decision-making in higher education. The systems assist in university planning, monitoring, and policy development.

Despite the fact that EMIS was created to overcome these issues, the success of such software depends heavily on the engagement and satisfaction of the users. There are still issues with usability, data accuracy, and technical support, particularly in low-income environments. These concerns underscore the significance of considering the quality of the key EMIS satisfaction outcomes, namely, service quality, system quality, and information quality, which are critical factors that determine the user satisfaction levels.

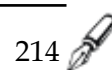
The Technology Acceptance Model (TAM) provides a useful model for looking into the impact of perceived usefulness and ease of use in regard to the involvement of users in EMIS. These perceptions affect user satisfaction by demonstrating how the system addresses the needs of the users and enables them to use it effectively. However, the study of TAM in EMIS research in the Nigerian universities is minimal, particularly on the relationship that exists between technology adoption, aspects of system quality, and user satisfaction.

The study also seeks to address some of the gaps in the literature by researching the relationship between service quality, system quality, and information quality as they also relate to the user satisfaction of EMIS systems in selected universities in Southwestern Nigeria. It offers a better comprehensive and context-specific insight into EMIS efficiency by incorporating diverse stakeholder groups into a specific institutional environment. Therefore, the aim of this study is to determine the user satisfaction with EMIS across a sample of Nigerian universities.

RESEARCH METHOD

This study was conducted in Southwestern Nigeria, which includes Osun, Oyo, Lagos, Ogun, Ekiti, and Ondo states. According to the National Universities Commission (NUC, 2018), Nigeria has 170 universities, comprising 43 federal, 48 state, and 79 private institutions. However, Southwestern Nigeria was chosen because it has a varied range of federal, state, and private universities that have implemented EMIS. The study focused on six universities that had adopted the Educational Management Information System (EMIS), as well as the EMIS units in the state Ministries of Education. The selected studies cover the six states in southwestern Nigeria.

This study used a mixed-methods approach, in which both qualitative and quantitative data were gathered concurrently and analyzed separately before being interpreted together. Therefore, the study used a mixed-method approach, with structured questionnaires and semi-structured interviews. A total of 300 questionnaires were distributed to students, IT professionals, university administrators, and EMIS personnel from the chosen ministries, out of



which 289 responses (96.3%) were retrieved. Interviews were conducted to validate and further explain the quantitative findings. Particularly, each ministry had one EMIS officer, and each university had one ICT staff member that was involved in the interview process.

User satisfaction and major EMIS quality dimensions were measured using quantitative data obtained through structured questionnaires. Also, semi-structured interviews provided a more in-depth perspective of how the system was used by users. These qualitative and quantitative results were presented. The interview themes were to complement the survey data, which enabled triangulation, as well as a better insight into EMIS user satisfaction.

The participants were of diverse groups and included the university administrators, students, and ICT personnel, who are system users and EMIS officers. In order to have a balance of points of view, the respondents were selected randomly both at the state ministries and at the universities to participate in the research.

The questionnaires were developed in three sets to provide useful information, and each was targeted to a particular group that is involved in the use and management of EMIS. One set to five EMIS officers per state ministry (30 respondents in total), another to ten ICT personnel, and lastly, to thirty students per university using EMIS (60 and 180 respondents, respectively). In general, a total of 300 copies of questionnaires were administered in this study in the effort to determine the satisfaction of EMIS users.

Although the questionnaires were designed in accordance with the roles and experiences of each group, they were all directed to measure the key aspects of the study: user satisfaction. In this manner, we ensured consistency in the measurement, and at the same time, we were able to respect the individual view on the use and performance of EMIS by each group.

The integrated user satisfaction and technology acceptance framework variables were taken as the variables used to measure user satisfaction (Wixom & Todd, 2005). These variables were service quality, system quality, information quality, outcome expectations, and organizational characteristics. The level of satisfaction was determined by means of a five-point Likert scale, 1 (not satisfied) to 5 (completely satisfied).

The participants were informed about the study purpose, possible risks and benefits of the study, and their participation was voluntary. They were assured of the privacy of their data and their right to withdraw from the study at any time. Letters of introduction were obtained for institutional access, and interviews were conducted only with participants' consent. All information collected was used solely for research purposes. The Statistical Package for the Social Sciences (SPSS) version 20 was used to edit, sort, code, and analyze the quantitative data, with a score of 5 indicating complete satisfaction and 1 indicating dissatisfaction. Mean values were used to assess EMIS users' satisfaction.

Quantitative data were edited, coded, and analyzed using SPSS version 20, and user satisfaction was determined by computing mean scores. Qualitative interview data were transcribed and analyzed using content analysis. However, content analysis was used to examine the qualitative data collected from semi-structured interviews. An inductive coding approach was used, which allowed patterns and themes to emerge from the data. The analysis began with transcribing interview responses, followed by repeated readings to guarantee familiarity with the information.

Meaningful data segments were selected and allocated initial codes before being sorted into larger groups based on commonalities. These themes were further divided into major themes that capture the experience of the participants with EMIS: service quality, system quality, information quality, and user satisfaction. The analysis was performed rigorously in order to increase the consistency and reliability of the findings. The responses of the selected participants were described to justify the identified themes, and the qualitative results were also compared with the quantitative data to explore the areas of convergence and consistency.

Research Design

The research was designed in such a way that it was clear and coherent in data collection and analysis (as seen in Figure 3). First of all, the study population was identified by using students, academic staff, ICT personnel, management staff, and EMIS officers of some universities and state ministries. The participants were then selected based on their involvement with the EMIS level purposefully.

The selected respondents were given three sets of structured questionnaires amounting to 300 copies. At the same time, semi-structured interviews were conducted with the chosen officers of EMIS and ICT personnel to obtain more comprehensive information concerning the use of systems and user experiences.

The quantitative responses were subsequently analyzed using both descriptive and inferential statistics techniques after data collection in order to investigate the correlations amongst system quality, service quality, information quality, and user satisfaction. The thematic analysis of the qualitative data collected during the interviews was performed to present the key patterns and common themes. At the interpretation stage, the quantitative and qualitative data were integrated in order to provide a more comprehensive picture of the satisfaction of EMIS users.

RESULTS AND DISCUSSION

This section outlines the analysis and findings from data collected at selected universities in Nigeria's southwestern states, aligned with the study's objectives. A total of 300 questionnaires were distributed, with 289 returned, achieving a response rate of 96.3%. The results are organized around the main dimensions of user satisfaction analyzed in the research.

All questionnaires submitted were thoroughly checked for completeness and consistency. Those with significant missing or incomplete answers were excluded, while questionnaires with minor omissions were kept and corrected during data cleaning. After this review, 285 copies of questionnaires were considered valid and used in the analysis. However, this approach helped to maintain the reliability and accuracy of the data for the study.

Socio-Demographic Characteristics of Respondents

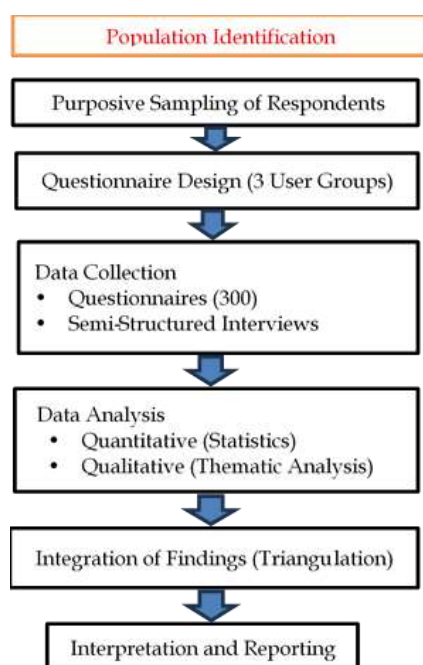


Figure 3. Research design flowchart

Table 1 presents the socio-demographic profile of respondents in the six Southwestern states of Nigeria – Lagos, Ogun, Oyo, Osun, Ondo, and Ekiti. Two hundred and eighty-nine people responded to the survey across the six states. The commonly occurring age group of respondents was aged 21-30 years (41.5%), because the majority of those who participated were students (users), followed by the 31-40-year age group (23.5%). Respondents aged 21 or younger accounted for 20.4%, while those aged 41 and older accounted for 14.5%. In addition, 60.2% of respondents were male, and 39.8% were female.

Considering the highest level of academic qualifications of respondents, almost half (43.9%) of the respondents were BSc/HND holders, while slightly over one-quarter (26.0%) had postgraduate degrees; about one-fifth of the participants were senior secondary school certificate holders (18.0%), with just 4.5% having primary school leaving certificates. Also, over half (58.1%) of respondents in this study were single, 40.8% were married, and 1% were divorced.

Table 1. Socio-demographic characteristics of the respondents

Characteristics		Frequency (N=289)	Percentage (%)
Age	21-30 years	120	41.5
	31-40	68	23.5
	Under 21years	59	20.4
	41+	42	14.5
Gender	Male	174	60.2
	Female	115	39.8
Highest Academic Qualifications	BSc/HND	127	43.9
	Postgraduate	75	26.0
	SSCE	52	18.0
	ND/NCE	22	7.6
	Primary School Leaving Certificate	13	4.5
Marital Status	Single	168	58.1
	Married	118	40.8
	Divorced	3	1.0
Designation	Users-Student	176	60.9
	Users-Staff	57	19.7
	Ministry Staff	29	10.0
	Management Staff	27	9.3
Years of Experience	Below 5 years	105	36.3
	5-10years	85	29.4
	10-20years	66	22.8
	Above 20 years	33	11.4

Regarding designation, the majority (60.9%) of respondents were students (users) at the selected universities, while 19.7% were staff (also users). Ministry and management staff, who also participated in the study, accounted for 10.0% and 9.3%, respectively. Moreover, the majority of the respondents (36.3%) had fewer than five years of experience, 29.4% already had 5-10 years of experience, and 22.8% had 10-20 years of experience, while just 11.4% (about one-tenth) claimed to have more than 20 years of experience in EMIS. Although respondents from all stakeholder groups participated in the survey, students made up the majority of the sample (60.9%). This disparity could have affected the overall satisfaction scores, possibly masking differences among user groups like administrators, ICT staff, and ministry officials. Future studies should consider performing subgroup analyses to better understand how EMIS satisfaction differs across various user categories.

Level of Satisfaction of the Users of the Educational Management Information System (EMIS) in the Institutions

Quantitative results and discussion of the questionnaire Findings on the level of satisfaction of the users of the Educational Management Information System (EMIS) in the Selected Institutions

System Quality

Table 2 shows EMIS users' level of satisfaction with system quality. The system quality was measured based on six variables such as timeliness, accessibility, language, integration, flexibility, and efficiency.

Table 2. User satisfaction with system quality dimensions of EMIS

S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
I	Flexibility	0.00	6.20	0.70	32.50	57.80	4.34
II	Language	0.00	10.40	0.70	26.60	56.70	4.29
III	Efficiency	0.00	10.70	1.00	33.20	52.20	4.27
IV	Accessibility	0.00	11.80	0.70	30.40	52.60	4.26
V	Integration	0.00	14.20	0.70	29.10	51.90	4.24
VI	Timeliness	0.00	13.10	0.70	41.90	39.40	4.07

Mean ratings are based on a five-point Likert scale ranging from 1 (Not Satisfied) to 5 (Completely Satisfied).

From the table (Table 2), flexibility had the highest rating of 4.34, which showed that the users of the EMIS were very satisfied with the flexibility of the EMIS. The great level of adaptability may reflect universities' efforts to tailor EMIS systems for student registration and administrative activities. This means that EMIS has the capacity to adapt, customize, and scale according to an institution's specific, evolving goals, operational needs, and user requirements over time. This supports Al-mamary et al.'s (2014) findings that the higher the system's flexibility, the higher the user's satisfaction, and vice versa.

However, as also shown in Table 2, the comparatively low timeliness rating indicates that users encounter delays in the availability or updating of information within the EMIS. Delays may be caused by infrastructure limits, slow internet connectivity, or administrative delays in data entry and system changes. Because EMIS is designed to support timely institutional decision-making, flaws in this area may diminish its efficacy as a decision-support tool. Improving system integration, network infrastructure, and data processing techniques may thereby improve the responsiveness and usefulness of EMIS in the participating institutions.

Information Quality

Table 3 shows EMIS users' satisfaction with information quality. System quality was measured using six variables: accuracy, reliability, precision, completeness, format, and volume.

From the table (Table 3), reliability had the highest rating of 4.35, which showed that the users of the EMIS were moderately satisfied with the capacity of the EMIS to consistently produce secure data for decision-making and administration. Moreover, although ranked lowest, respondents were also moderately satisfied with the EMIS format (mean rating of 4.04). Within the information quality dimension, the format of information had the lowest mean score (3.03), indicating that users were only moderately satisfied with how information is presented in the EMIS. This finding indicates that although the system produces relevant and reliable data, its organization, presentation, and access methods may not fully align with user



expectations. Possible reasons include a limited user-friendly interface, complex data formats, and challenges in creating customized reports tailored to various stakeholders like students, administrators, and government officials. Many institutional EMIS platforms mainly present information in strict tabular forms or demand technical skills to interpret, potentially restricting accessibility for certain users.

Service Quality

Table 4 shows EMIS users' satisfaction with service quality. Service quality was measured based on ten variables: relationship with staff, technical competence, communication with staff, attitude of staff, schedule of products or services, time required for new development, processing of charge request, vendor support, response time, and means of input to the center.

From the table (Table 4), Relationship with Staff had the highest mean rating of 4.27, which showed that the users of the EMIS were moderately satisfied with the EMIS relationship with staff. This has to do with the collaborative, supportive, and data-driven partnership aimed at improving administrative efficiency and educational quality. However, the mean rating for 'Schedule of product or services' was very low (3.90), indicating moderate satisfaction. Some of the schedules include the implementation roadmap, the core services included, user-centric services, and the maintenance and renewal schedule, among others. Generally, the findings indicate moderate satisfaction with the EMIS service quality. This finding correlates with Mariono and Sabar's (2023) discovery that service quality plays an important role in determining user satisfaction. However, variations in study context and respondent groupings may explain discrepancies in the strength of this association between contexts.

Table 3. Level of satisfaction of the user of EMIS–information quality

S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
I	Reliability	0.00	1.10	9.50	42.50	46.90	4.35
II	Accuracy	0.00	0.00	16.10	34.10	49.80	4.34
III	Precision	0.00	0.00	18.00	37.90	44.20	4.26
IV	Completeness	0.00	3.60	15.30	38.50	42.50	4.20
V	Volume	0.00	0.00	14.50	61.20	24.30	4.10
VI	Format	0.00	1.50	13.70	64.60	20.30	4.04

Key: Mean ratings are based on a five-point Likert scale ranging from 1 (Not Satisfied) to 5 (Completely Satisfied).

Table 4. Level of satisfaction of the user of EMIS–service quality

S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
I	Relationship with Staff	0.00	0.70	16.50	38.10	44.60	4.27
II	Communication with Staff	0.00	0.70	20.10	39.40	39.80	4.18
III	Technical Competence	0.00	0.00	23.30	37.30	39.40	4.16
IV	Attitude of Staff	0.00	3.60	20.40	39.80	36.10	4.08
V	Means of input with the centre	0.00	4.50	21.10	39.10	35.30	4.05
VI	Response time	0.00	2.60	21.90	44.90	30.60	4.03
VII	Time required for new development	0.00	4.50	22.30	39.00	34.20	4.03

S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
VIII	Processing of Charge Request	0.00	5.20	22.60	40.70	31.50	4.99
IX	Vendor Support	0.00	5.10	28.20	36.60	30.00	4.91
X	Schedule of Product or Services	0.00	3.30	32.50	35.40	28.80	4.90

Key: Mean ratings are based on a five-point Likert scale ranging from 1 (Not Satisfied) to 5 (Completely Satisfied).

Outcome Expectation

Table 5 shows users' satisfaction with the EMIS's outcome expectations. Outcome expectations were measured using 10 variables: expectations, understanding of the system, confidence in the system, degree of training, user-friendliness, feelings of control, usefulness, relevance, job effects, and ease of use. This finding is consistent with earlier research that has emphasized the importance of clear and user-friendly information display in determining satisfaction with information systems. Mariono and Sabar (2023) found that systems with clearer data presentation and more accessible interfaces tend to achieve higher levels of user satisfaction.

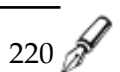
In a similar vein, Martins et al. (2019) emphasized that information systems in higher education should provide well-structured and easily interpretable outputs to support effective decision-making. Since the format rating is comparatively low, as observed in this study, better visual layout, report generation capabilities, and general accessibility to information on the EMIS would increase user satisfaction and system usability in the participating institutions.

Such findings can be explained more by the fact that technology acceptance is mainly determined by the relevance (4.44), usefulness (4.40), and ease of use (4.39) scores, and these scores are high, attesting to the fact that users find the EMIS quite useful and fairly easy to use. Such impressions will most probably result in increased user satisfaction and continued use of the system. Also, the high and stable ratings of information, system, and service quality can be associated with the model of integrated user satisfaction because these factors are paramount in the creation of the overall satisfaction.

Despite the fact that the system is viewed as very relevant, it has a low rating score of 4.19, indicating that there is a discrepancy between the potential the system has and the relevance it is given to the users. Users are aware of the value and functions of EMIS, and existing training might fail to give them time to make the most of its features. This implies that it depends on informal assistance or personal experience rather than on the formal training programs. More effective use of the system and, consequently, increased overall satisfaction with EMIS, could be achieved by better training that increases user confidence. This has been congruent with the findings made by Dezdar and Ainin (2011), who underscore the importance of training in effective use of information systems.

Table 5. Level of satisfaction of the user of EMIS–outcome expectation

S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
I	Relevance	0.00	0.40	3.30	47.40	48.90	4.44
II	Usefulness	0.00	0.00	10.30	39.60	50.20	4.40
III	Easy to use	0.00	1.10	9.80	37.70	51.40	4.39
IV	Job Effects	0.00	0.70	13.20	39.60	46.50	4.32
V	Understanding	0.00	0.70	9.20	47.80	42.30	4.32



S/N	Statements	Not Satisfied (%)	Slightly Satisfied (%)	Moderately Satisfied (%)	Very Satisfied (%)	Completely Satisfied (%)	Mean Rating
VI	of System User Friendliness	0.00	1.80	15.90	34.40	47.80	4.28
VII	Expectations	0.00	0.00	6.40	59.00	34.70	4.28
VIII	Confidence of System	0.00	0.40	16.50	41.00	42.10	4.25
IX	Feelings of control	0.00	1.10	19.20	38.40	41.30	4.20
X	Degree of Training	0.00	2.20	19.00	36.50	42.30	4.19

Key: Mean ratings are based on a five-point Likert scale ranging from 1 (Not Satisfied) to 5 (Completely Satisfied).

Organisational Factors

Table 6 demonstrates the level of satisfaction of the EMIS users with the different organizational factors. These are eight areas, which are top management involvement, organizational competition, priority setting, charge-back approach, error recovery, data security, documentation, and organizational positioning.

As obvious in Table 6, the highest mean score was on data security (4.18), which indicates a moderate level of satisfaction with the system in terms of data protection with sensitive institutional information. This is particularly vital because EMIS holds very crucial information regarding the students, academic personnel, performance history, and all the activities of the institution as a whole. The security, integrity, and availability of such data are the determinants for creating trust among users and thus a satisfied use of systems.

Table 6. Level of satisfaction of the user of EMIS-organizational factors

S/N	Statements	Mean Rating
I	Security of Data	4.18
II	Documentation	4.09
III	Top Management Involvement	4.07
IV	Organizational Position	4.03
V	Priorities Determination	3.97
VI	Error Recovery	3.96
VII	Organizational Competition	3.93
VIII	Charge-back method	3.81

Mean Rating Key: Mean ratings are based on a five-point Likert scale ranging from 1 (Not Satisfied) to 5 (Completely Satisfied).

According to the existing literature, the organizational governance and data protection strategies are crucial to the successful implementation of information systems. According to Martins et al. (2019), secure information management enhances the level of user trust, as well as encourages continued interaction with educational information systems. Similarly, Sintayehu and Menber (2019) emphasize that appropriate governance structures, organizational commitment, and appropriate security enhance EMIS effectiveness. However, the mediocre level of satisfaction represented in the current study shows that despite existing fundamental security protocols, the situation could be much improved.



Enhancing institutional governance and data protection practices could further improve user confidence and overall satisfaction with the system. This supports Al-mamary et al. (2014)'s findings that the higher the system's flexibility, the higher the user's satisfaction, and vice versa. However, as shown in Table 6, the charge-back method received the lowest rating of 3.81, with moderate satisfaction regarding how the system allocates the costs of technology services, software, and infrastructure to specific users, departments, schools, or units based on their actual usage, rather than a flat fee. Amankwah et al. (2019) and Sintayehu & Menber (2019) generally supported the role of organizations in user satisfaction with EMIS.

Qualitative Result and Discussion of Interview Data on the Level of Satisfaction of the Users of the Educational Management Information System (EMIS) in the Institutions

The qualitative findings were examined thematically and provided alongside the survey data to offer additional context. The interviews identified three main themes: issues with system integration, a preference for EMIS over conventional systems, and the need for system improvements.

Theme 1: System integration challenges (main theme). The majority of the interviewees (6 out of 8) indicated structural and integration issues in EMIS. One of the respondents commented that the system is moderately okay since it was created on the basis of the necessity of a specialized system (e.g., student portal), and this has rendered one aspect of the EMIS unable to work without another aspect. This implies that the architecture of the system can be a limitation to the flexibility and independence of the modules.

The same participant described the same aspect by stating that the previous components of the system can still be observed in the present functionality because the previous versions were not completely substituted but were modified.

Theme 2: Preference of EMIS to traditional systems (main theme). In spite of these difficulties, the majority of the participants (7 out of 8) clearly prefer EMIS to traditional data management techniques. This is in line with the survey finding where means are high in usefulness, relevance, and efficiency.

Some respondents, for instance, a man aged 44 years, remarked that he would rather use EMIS than the old type due to the reason that it is timely, accurate, and useful compared to the old data management system. This points to the usefulness of EMIS to the users, in particular data precision and promptness.

Theme 3: Requirement to improve the system: A fewer number of the respondents (3 out of 8) registered the necessity to improve the system further. As an example, one interviewee said that the program is more or less good, but it can be enhanced. This represents a general perception that, although the system is reasonably good in general, there are areas where it can be improved, particularly in the areas of usability, integration, and technical support. In general, the qualitative data confirm the findings of the survey, indicating that, despite the overall satisfaction of the users with EMIS, there are still certain limitations of the system. These results provide a background to the quantitative data and outline areas of improvement for the enhancement.

Also, in order to provide a more comprehensive assessment of user satisfaction with EMIS, composite mean scores were computed on each of the key variables by analyzing the means of the item-level construct. As shown in Table 7, there was a high composite mean score of system quality, meaning that the users were, generally, satisfied with the technical performance of the system. Meanwhile, the mean scores of organizational characteristics and service quality were lower, as it was manifested by the medium satisfaction with the institutional support and service delivery. The total user satisfaction index, which was determined as the mean of all the variables assessed, was about 3.20, meaning that the users at the participating institutions were generally satisfied with EMIS.

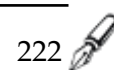


Table 7. Composite score

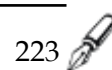
Dimension	Number of Items	Composite Mean Score	Satisfaction Level
System Quality	6	3.41	Very Satisfied
Information Quality	6	3.22	Moderately Satisfied
Service Quality	10	3.07	Moderately Satisfied
Outcome Expectation	10	3.31	Moderately Satisfied
Organisational Factors	8	3.01	Moderately Satisfied
Overall Satisfaction Index	40	3.20	Moderately Satisfied

CONCLUSION

This paper examined the user satisfaction with the Educational Management Information System (EMIS) in the selected Southwestern Nigerian universities in regard to important variables of user satisfaction. Findings indicate a high level of satisfaction with the quality of the system, particularly with the flexibility, the language choice, and the general relevance. Nevertheless, the satisfaction with the quality of information, quality of service, expectations of outcomes, and organizational characteristics was moderate. Such aspects as responsiveness, technical support, and administrative processes were rated less. These results suggest that users of EMIS are satisfied with technical features; however, improvements in support service and organizational processes are necessary to enhance the overall level of satisfaction. Questionnaires were used to collect data on 300 respondents at different user groups using a five-point Likert scale, where "Not Satisfied" is the lowest scale (1) to "Completely Satisfied" (5). EMIS scored highly in system quality, information reliability, and usefulness but scored lower in service support, vendor assistance, training, and scheduling. Although the system is generally effective, targeted enhancements in support and training are necessary for more balanced performance. Overall, user satisfaction is moderate, presenting opportunities for improvement. Key factors include system reliability, technical support, and training. Enhancing these areas could improve user experience. The study's focus on Southwestern Nigerian universities may limit the generalizability of findings, and the sample might not reflect all university variations. Differences among user groups could also influence perceptions. Future research could compare different regions, conduct longitudinal studies to observe satisfaction over time, and use predictive modeling to identify key satisfaction drivers. Analyzing specific user groups like administrators, staff, and students could offer more targeted insights for enhancements. While EMIS has improved data management and administrative efficiency in the studied institutions, there is significant potential to improve technical support, training, and organizational coordination. Therefore, strengthening these areas will likely increase user satisfaction and further boost EMIS's role as an effective decision-support tool in Nigerian universities.

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