



Attitude of teachers toward the adoption of learning management systems in secondary schools in delta state

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ABSTRACT

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Keywords

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The purpose of this study is to investigate the attitudes of teachers toward the adoption of learning management systems (LMS) in secondary schools in Delta State. A descriptive survey research design was employed, and a total of three research questions were answered and one hypothesis was tested. The study initially recruited 384 teachers, evenly distributed between genders, but a final total of 361 participants completed the study. Data collection involved the use of a validated questionnaire, with a reliability index of 0.83. The data was analyzed using the mean, standard deviation and an independent samples t-test, with a significance level set at 0.05. The findings of the study revealed that teachers' attitudes toward LMS adoption in secondary schools in Delta State are generally positive, and there was no statistically significant difference in the attitudes toward LMS adoption between male and female teachers. Based on these results, it is recommended that educational institutions in Delta State continue to invest in the integration of learning management systems in their teaching and learning processes.

Contribution/Originality: This study contributes to existing knowledge by providing empirical data on teachers' attitudes toward the adoption of learning management systems, with particular reference to secondary schools in Delta State. Before now, no study to the best knowledge of the researchers has been carried out.

1. INTRODUCTION

The use of information and communication technology (ICT) has significantly impacted every industry, including education. Technological advancements have brought about various improvements in the education sector, offering teachers and students new opportunities to personalize teaching and learning (Ratheeswari, 2018).

The growth of internet technology and ICT has made it possible for the application of e-learning in academic environment for students and teachers (Ashrafzadeh & Sayadian, 2015). Learning management is one of the ICT and internet technologies that has pervaded the school system (Turnbull, Chugh, & Luck, 2020). A learning management system is an internet-based software application which assists in managing, documenting, tracking, and reporting training programmes, whether conducted in physical classrooms or online. This system integrates software tools and web-based technologies to improve the overall planning, delivery, and monitoring of training processes, with the goal of facilitating specific learning outcomes (Sabharwal, Hossain, Chugh, & Wells, 2018).

Two types of LMS exist: open source and commercial. Typically, these systems are flexible, easy for users to navigate, and readily available. They empower educators to generate online course materials and oversee students'

advancements, promoting the development of critical thinking abilities and collaborative activities (Zanjani, Edwards, Nykvist, & Geva, 2016). According to Walker, Lindner, Murphrey, and Dooley (2016) they provide various functionalities such as video conferencing, virtual group discussions, real-time comments, educational materials for lectures, and interactive communication between teachers and students. Customization options are available for learning modules, course assessments, and grading, allowing adaptation to specific teaching and learning requirements.

The use of learning management systems in education has positive effects on both teachers and students, as it facilitates content sharing, collaboration, and participation (Goh, Hong, & Gunawan, 2014). Educational institutions utilize these systems in various ways, such as running online courses and implementing blended learning for sustainable education (Cavus, Mohammed, & Yakubu, 2021). LMS features, such as forums, wikis, glossaries, and various communication tools, make it adaptable to different instructional approaches, enhancing students' learning skills and academic performance (Correa-Baena et al., 2018; Esa, Jemali, & Mohamad, 2017; Yoloye, 2015).

Despite the importance of LMSs, their adoption has not met the expected results due, in part, to their lack of adoption by teachers (Hanan, 2020). Studies have shown that their use is unsatisfactory among teachers and students in certain educational settings (Jayathilake & Jayawardhana, 2017). Additionally, the slow uptake of ICT, particularly LMSs, in many developing countries has limited their benefits (Yakubu, Dasuki, Abubakar, & Kah, 2020). An important factor influencing the successful integration of a learning management system is teachers' attitude toward the technology. Positive attitudes are associated with effective LMS implementation, while negative attitudes may lead to challenges in their adoption and utilization (Obiegbu, 2016). Understanding teachers' attitudes toward LMSs is essential to optimize their impact on the educational process. Therefore, this study aims to explore teachers' attitudes toward the adoption of LMSs in secondary schools in Delta State.

2. REVIEW OF LITERATURE

Numerous research studies have investigated teachers' attitudes toward the adoption of learning management systems. For instance, Lochner, Conrad, and Graham (2015) explored the apprehensions of U.S. secondary teachers regarding LMS adoption through the Concerns-Based Adoption Model (CBAM). Their assessment covered various stages, including awareness, informational, personal, management, consequence, collaboration, and refocusing. The findings indicated a lack of awareness among teachers about learning management systems, with notable concerns related to managing the innovation, personal readiness for adoption, and the necessity for more information regarding its implications for their teaching practices.

In another study, Bousbahi and Alrazgan (2015) investigated the factors that influence the acceptance of LMSs among faculty members. They conducted surveys of Information Technology faculties to gauge their perceptions of incorporating an LMS into their courses. The research identified personal factors such as motivation, workload anxiety, and organizational support as pivotal in shaping IT faculty members' views on the usefulness of LMSs. These results suggest an extension of the Technology Acceptance Model (TAM) to encompass these factors, offering insights for universities aiming to implement a learning management system effectively.

In their 2022 study, Riyath and Muhammed Rijah investigated the factors influencing the adoption of learning management systems by teachers within the domain of open and distance learning environments in advanced technological institutes. By employing the extended TAM and structural equation modeling, the research revealed that the perceived self-efficacy and job relevance were notable factors that significantly impact perceived usefulness and perceived ease of use. Furthermore, the study found that perceived usefulness, perceived ease of use, and service quality played significant roles in shaping educators' attitudes, subsequently influencing their behavioral intention and the actual utilization of LMSs.

A study conducted by Olatunji and Akinsulire (2022) at the University of Ibadan, Nigeria, focused on the awareness of and attitudes toward LMSs among undergraduates. The research revealed a predominantly positive

attitude among the selected undergraduates, indicative of a high level of awareness about these systems. On the other hand, Gasaymeh, Al-hasanat, Kraishan, and Abutayeh (2017) examined faculty members' concerns regarding LMS adoption using the Concerns-Based Adoption Model (CBAM) in a Jordanian university. The study highlighted that concerns were most pronounced during the initial stages of LMS introduction, with faculty members displaying a general lack of awareness and interest in LMSs and expressing apprehension about their management, time requirement, and logistical aspects.

The above literature presents a range of empirical studies investigating teachers' attitudes toward the adoption of learning management systems. These studies have highlighted various concerns and factors influencing the acceptance and implementation of LMSs among educators. The findings underscore the importance of addressing teachers' attitude toward LMS adoption to ensure successful integration and utilization of the systems in educational settings. Despite the significant body of research on teachers' attitudes toward LMS adoption, there remains a notable gap in the literature concerning the specific context of secondary schools in Delta State. While various studies have examined LMS adoption in different regions and educational settings, a comprehensive understanding of teachers' attitudes toward learning management systems in Delta State's secondary schools is lacking. Conducting a study in this context can provide valuable insights into the challenges and opportunities associated with LMS adoption in the region and can aid in the formation of tailored strategies to enhance their successful implementation and impact on teaching and learning.

2.1. Research Questions

1. What is the attitude of teachers toward the adoption of LMSs in secondary schools in Delta State?
2. What is the attitude of male teachers toward the adoption of LMSs in secondary schools in Delta State?
3. What is the attitude of female teachers toward the adoption of LMSs in secondary schools in Delta State?

2.2. Hypothesis

There is no significant difference in the attitudes of male and female teachers towards the adoption of LMSs in secondary schools in Delta State.

3. METHOD

3.1. Design of the Study

The research employed a descriptive survey research design with the aim of investigating teachers' attitudes toward implementing learning management systems in secondary schools within Delta State.

3.2. Participant Selection

The study involved a sample of 384 teachers who were chosen from secondary schools in Delta State. Among them, 192 were males and 192 were females, selected through two techniques: proportionate stratified sampling and convenience sampling. Proportionate stratified sampling ensured that teachers were selected from each school in the 25 local government areas based on their population size. Convenience sampling, on the other hand, allowed the researcher to recruit teachers who agreed to and made themselves available for the study.

3.3. Measures

A questionnaire was used as the data collection method and specifically used the "Attitude Toward Adoption of LMS Rating Scale." This self-report scale was designed to assess teachers' attitudes toward implementing learning management systems in secondary schools. It comprised 26 items, each measured on a 4-point scale, ranging from 1 (strongly disagree) to 4 (strongly agree).

Before using the scale in the study, it underwent validation by experts. To assess its reliability, 50 copies of the scale were administered to secondary school teachers who did not participate in the main study. The data from these teachers was then analyzed using Cronbach's alpha reliability coefficient. The obtained coefficient was 0.83, which exceeded the recommended benchmark of 0.70. This high coefficient value indicates that the instrument is highly reliable and suitable for the entire target population.

3.4. Data Collection

Five research assistants were enlisted and trained by the researchers to accompany them in administering the questionnaire to the teachers in their respective schools. The teachers were asked to use the 4-point scale to rate their level of agreement with various aspects of the instrument. To ensure clarity, the essential sections of the questionnaire were explained to the teachers.

To prevent data loss, the completed questionnaires were collected immediately after completion. The entire process, from recruiting and training the research assistants to collecting the questionnaires, spanned a six-week period. Of the 384 copies of the questionnaire distributed, an impressive 94% retrieval rate was achieved, with 361 questionnaires returned by the teachers.

3.5. Ethical Considerations

To adhere to ethical principles, the researchers obtained permission from the principals of the respective schools. Accompanied by the research assistants, they personally met the principals to explain the purpose of the study and seek permission. Subsequently, the principals introduced the research team to the teachers, providing them with information about the study and its voluntary nature. The teachers were assured that they had the freedom to decline or withdraw from the study at any point if they felt uncomfortable with the process. As a result, some teachers chose not to participate in the exercise, while others agreed to take part. Those who agreed to participate provided informed consent before proceeding. Importantly, no adverse consequences were imposed on those who declined to participate; their decision was fully respected.

3.6. Data Analysis

To address the research questions, with a criterion mean of 2.50, the statistical mean and standard deviation were employed. The null hypothesis was tested using the independent samples t-test at a significance level of 0.05. The analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 26.

4. RESULTS

Research Question 1: What is the attitude of teachers toward the adoption of LMSs in secondary schools in Delta State?

Table 1 presents the mean ratings of teachers' attitudes. The mean values, listed in descending order, range from 2.64 to 2.96, with an average mean of 2.81. The criterion mean of 2.50 was used as a reference point, revealing that teachers' attitudes toward LMS adoption in secondary schools in Delta State are generally positive.

Table 1. Mean rating of the attitudes of teachers toward the adoption of LMSs in secondary schools in Delta State.

S/N	Statement	Mean	SD	Remark
1	I have a strong desire to receive further training on using the learning management system (LMS).	2.96	1.04	High
2	I have experienced that the LMS promotes effective and dynamic teaching approaches.	2.96	1.01	High
3	The flexibility introduced by the LMS significantly improves educational institution systems.	2.90	1.05	High
4	The convenience of learning through an LMS without physically	2.86	1.03	High

S/N	Statement	Mean	SD	Remark
	attending school is a significant advantage.			
5	The interaction between teachers and students is significantly increased when an LMS is employed.	2.86	1.00	High
6	The LMS tends to yield better outcomes compared to traditional education methods.	2.85	1.02	High
7	The quick and efficient delivery of information to students is a notable benefit of using the LMS.	2.85	1.02	High
8	The introduction of an LMS fosters a shift in the competitive criteria within the educational environment.	2.84	1.01	High
9	The LMS plays a pivotal role in effectively integrating educational resources.	2.82	1.01	High
10	Learning through the LMS encourages collaboration between educational institutions.	2.82	1.01	High
11	The adoption of LMSs has a positive impact on the overall capacity of educational institutions.	2.81	1.03	High
12	I envision that, in the future, the use of LMSs will become an essential aspect for all teachers.	2.81	1.03	High
13	Whenever I encounter any difficulties while using the LMS, I seek help from others.	2.81	1.04	High
14	LMSs make teachers' roles more manageable and facilitates their tasks.	2.81	1.02	High
15	I find that utilizing the LMS helps me better understand scientific material.	2.81	1.03	High
16	The integration of the LMS into lesson practices brings about transformative changes.	2.80	1.03	High
17	Discussing the usage of the LMS with my colleagues is something that I regularly engage in.	2.79	1.03	High
18	The individualized learning environment that the LMS provides makes it easier for teachers to cater to each student's needs.	2.78	1.02	High
19	Conversations about the benefits of using LMSs in teaching bring me a lot of enjoyment.	2.77	1.03	High
20	I believe that, over time, traditional education will gradually be replaced by learning through LMSs.	2.76	1.01	High
21	I find the learning experience with the LMS to be intriguing and captivating.	2.76	0.99	High
22	Employing the LMS offers numerous advantages to the teaching process.	2.76	1.04	High
23	Using the LMS has a positive impact on students' academic achievement.	2.73	1.01	High
24	I have observed that the LMS enhances the teaching process in various ways.	2.73	1.01	High
25	The LMS seems to shift the classroom dynamics, reducing the teacher's dominance and empowering the students.	2.67	0.97	High
26	Organizing subject matter becomes more streamlined with the help of the LMS.	2.64	0.96	High
Average mean		2.81	1.02	High
Criterion mean = 2.50				

Research Question 2: What is the attitude of male teachers toward the adoption of LMSs in secondary schools in Delta State?

Table 2 presents the mean rating of male teachers' attitudes toward adopting LMSs. The mean values, listed in descending order, range from 2.59 to 2.97, with an average mean of 2.82. The criterion mean of 2.50 was used as a reference point, revealing that male teachers' attitudes toward LMS adoption in secondary schools in Delta State are generally positive.

Table 2. Mean rating of the attitudes of male teachers toward the adoption of LMSs in secondary schools in Delta State.

S/N	Statement	Mean	SD	Remark
1	The flexibility introduced by LMSs significantly improves educational institution systems.	2.97	1.06	High
2	I have experienced that LMSs promote effective and dynamic teaching approaches.	2.96	1.01	High
3	The interaction between teachers and students is significantly increased when an LMS is employed.	2.93	1.00	High
4	Learning through the LMS encourages collaboration between educational institutions.	2.93	1.02	High
5	LMSs tend to yield better outcomes compared to traditional education methods.	2.91	1.01	High
6	I have a strong desire to receive further training on using LMSs.	2.91	1.04	High
7	LMSs make teachers' roles much more manageable and facilitates their tasks.	2.91	1.00	High
8	Discussing the usage of LMSs with my colleagues is something I regularly engage in.	2.87	1.03	High
9	The introduction of LMSs fosters a shift in the competitive criteria within the educational environment.	2.87	1.00	High
10	I believe that, over time, traditional education will gradually be replaced by learning through LMSs.	2.87	1.00	High
11	Whenever I encounter any difficulties while using the LMS, I seek help from others.	2.85	1.04	High
12	The quick and efficient delivery of information to students is a notable benefit of using LMSs.	2.84	1.01	High
13	LMSs play a pivotal role in effectively integrating educational resources.	2.84	1.03	High
14	The integration of LMSs into lesson practices brings about transformative changes.	2.83	1.02	High
15	I find the learning experience with LMSs to be intriguing and captivating.	2.82	0.99	High
16	The convenience of learning through LMSs without physically attending school is a significant advantage.	2.81	1.01	High
17	I envision that, in the future, the use of LMSs will become an essential aspect for all teachers.	2.80	1.03	High
18	The adoption of LMSs has a positive impact on the overall capacity of educational institutions.	2.79	1.03	High
19	Conversations about the benefits of using LMSs in teaching bring me a lot of enjoyment.	2.79	1.02	High
20	I find that utilizing the LMS helps me better understand scientific material.	2.78	1.01	High
21	Using the LMS has a positive impact on students' academic achievement.	2.77	0.99	High
22	The individualized learning environment that LMSs provide makes it easier for teachers to cater to each student's needs.	2.74	1.02	High
23	Employing LMSs offers numerous advantages in the teaching process.	2.70	1.01	High
24	I have observed that LMSs enhance the teaching process in various ways.	2.69	1.01	High
25	LMSs seem to shift the classroom dynamics, reducing the teacher's dominance and empowering the students.	2.63	0.96	High
26	Organizing subject matter becomes more streamlined with the help of the LMS.	2.59	0.93	High
Average mean		2.82	1.01	High
Criterion mean = 2.50				

Research Question 3: What is the attitude of female teachers toward the adoption of LMSs in secondary schools in Delta State?

Table 3 presents the mean rating of female teachers' attitudes toward adopting LMSs. The mean values, listed in descending order, range from 2.64 to 3.01, with an average mean of 2.79. The criterion mean of 2.50 was used as a reference point, revealing that female teachers' attitudes toward LMS adoption in secondary schools in Delta State are generally positive.

Hypothesis 1: There is no significant difference in the attitudes of male and female teachers toward the adoption of LMSs in secondary schools in Delta State.

Table 3. Mean rating of the attitude of female teachers toward the adoption of LMSs in secondary schools in Delta State.

S/N	Statement	Mean	SD	Remark
1	I have a strong desire to receive further training on using LMSs.	3.01	1.05	High
2	I have experienced that LMSs promote effective and dynamic teaching approaches.	2.95	1.01	High
3	The convenience of learning through LMSs without physically attending school is a significant advantage.	2.93	1.05	High
4	The quick and efficient delivery of information to students is a notable benefit of using LMSs.	2.85	1.04	High
5	The adoption of LMSs has a positive impact on the overall capacity of educational institutions.	2.84	1.03	High
6	I find that utilizing LMSs helps me better understand scientific material.	2.84	1.05	High
7	Employing LMSs offers numerous advantages in the teaching process.	2.83	1.07	High
8	The individualized learning environment that LMSs provide makes it easier for teachers to cater to each student's needs.	2.83	1.02	High
9	I envision that, in the future, the use of LMSs will become an essential aspect for all teachers.	2.83	1.04	High
10	The flexibility introduced by LMSs significantly improves educational institution systems.	2.81	1.03	High
11	The introduction of LMSs fosters a shift in the competitive criteria within the educational environment.	2.80	1.02	High
12	LMSs play a pivotal role in effectively integrating educational resources.	2.80	0.99	High
13	The interaction between teachers and students is significantly increased when an LMS is employed.	2.79	1.00	High
14	LMSs tend to yield better outcomes compared to traditional education methods.	2.78	1.02	High
15	I have observed that LMSs enhance the teaching process in various ways.	2.76	1.02	High
16	Whenever I encounter any difficulties while using the LMS, I seek help from others.	2.76	1.04	High
17	The integration of LMSs into lesson practices brings about transformative changes.	2.75	1.03	High
18	Conversations about the benefits of using LMSs in teaching bring me a lot of enjoyment.	2.74	1.05	High
19	LMSs seem to shift the classroom dynamics, reducing the teacher's dominance and empowering the students.	2.73	0.98	High
20	I find the learning experience with LMSs to be intriguing and captivating.	2.70	0.99	High
21	LMSs make the teacher's role much more manageable and facilitates their tasks.	2.70	1.05	High
22	Learning through LMSs encourages collaboration between educational institutions.	2.69	0.98	High
23	Discussing the usage of LMSs with my colleagues is something I regularly engage in.	2.69	1.03	High
24	Using LMSs has a positive impact on students' academic achievement.	2.69	1.03	High
25	Organizing subject matter becomes more streamlined with the help of LMSs.	2.68	1.00	High
26	I believe that, over time, traditional education will gradually be replaced by learning through LMSs.	2.64	1.00	High
Average mean		2.79	1.02	High
Criterion mean = 2.50				

Table 4. T-test comparison of the differences in the attitudes of male and female teachers toward the adoption of LMSs in secondary schools in Delta State.

Sex	<i>n</i>	Mean	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>	Remark
Male	192	2.82	0.48	359	0.69	0.49	Not significant
Female	169	2.79	0.53				

Table 4 shows the results of the t-test that examined the differences in attitudes concerning the adoption of learning management systems among male and female teachers in Delta State secondary schools. The analysis was conducted at a significance level of $\alpha = 0.05$. Among the male teachers, the average attitude score toward LMS adoption was 2.82, accompanied by a standard deviation (SD) of 0.48. Conversely, the female teachers demonstrated an average attitude score of 2.79, with a standard deviation of 0.53. The t-value stands at 0.69, yielding a corresponding p-value of 0.49. Given that the p-value (0.49) exceeds the chosen significance level ($\alpha = 0.05$), the outcome is deemed "Not Significant." Hence, the null hypothesis is accepted. This implies that there is no statistically significant difference in attitude toward LMS adoption between male and female teachers in secondary schools within Delta State.

5. DISCUSSION

The findings of the study revealed that both male and female teachers hold positive attitudes toward LMS adoption. From the hypothesis test, it was found that no statistically significant difference exists in the attitudes toward LMS adoption between male and female teachers. This is a positive finding, as it suggests that LMSs have the potential to be valuable tools for improving student learning. However, it is important to note that not all teachers are equally comfortable with using technology. Therefore, it is important to provide teachers with training and support in order to help them effectively use LMSs in their classrooms.

The above findings demonstrate a positive outlook toward LMS adoption among teachers in secondary schools in Delta State. The lack of a significant difference in attitudes between male and female teachers reinforces the notion that the integration of technology, such as learning management systems, is generally well-received across gender lines in educational settings. The findings are consistent with the existing literature on teachers' attitudes toward LMS adoption. For instance, a study by Lasanthika and Tennakoon (2019) on the adoption of learning management systems in higher education found that teachers in Sri Lanka had generally positive attitudes toward LMS adoption. Another study by Termit and Chan (2014) found that teachers in Malaysia had generally positive attitudes toward LMS adoption.

6. CONCLUSION AND RECOMMENDATIONS

In view of the findings of the study, it can be concluded that teachers in secondary schools within Delta State generally hold positive attitudes toward the adoption of learning management systems, and there is no statistically significant difference in their attitudes. These findings highlight the potential for successful implementation and utilization of LMSs in secondary schools in Delta State. The positive attitudes among teachers are encouraging, as they indicate a readiness to embrace technology and innovative tools to enhance the learning experience for students.

Based on the above conclusion, it is recommended that educational institutions in Delta State continue to invest in the integration of LMSs in their teaching and learning processes. To make the most of this opportunity, the following recommendations are proposed:

1. Provide comprehensive training: Offer comprehensive training programmes to teachers, ensuring they are well-versed in using the LMS effectively. Proper training will empower teachers to leverage the full potential of the LMS and implement it seamlessly in their classrooms.

2. Encourage collaboration: Promote collaboration among teachers to share best practices and experiences related to LMS adoption. Creating a platform for teachers to exchange ideas will foster a supportive and innovative learning environment.
3. Monitor implementation: Regularly assess the progress of the LMS implementation to identify any challenges or areas of improvement. Feedback from teachers and students will be invaluable in refining the integration process and addressing any potential issues.
4. Provide continuous support: Ongoing technical support and assistance should be provided for teachers to address any concerns or difficulties they may encounter while using the LMS. A strong support system will ensure a smooth transition and sustainable adoption of the LMS in the long run.
5. Evaluate student outcomes: Conduct thorough evaluations of student outcomes to determine the impact of the LMS on their learning experiences. Assessments can help identify the effectiveness of the LMS in improving student engagement, performance, and overall learning outcomes.

6.1. Implications of the Study

This study has implications for teaching, educational management, and research. The study is expected to create awareness of the attitudes of teachers toward the adoption of learning management systems in secondary schools. Such knowledge is expected to help the teachers, principals, and policy makers of the schools to plan for the implementation of learning management in the school system. The study also adds to the body of knowledge on the Technology Acceptance Model. Such empirical data will act as a reference point for other researchers who may be interested in conducting similar research.

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Institutional Review Board Statement: The Ethical Committee of the Delta State University Abraka, Nigeria has granted approval for this study on 15 February 2023 (Ref. No. DELSU/FSS/D/50).

Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Competing Interests: The authors declare that they have no competing interests.

Authors' Contributions: Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.

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