Online Learning Management System: An Essential Resource for Effective Learning in University of Ilorin

Ebenezer Sanya, IBIRONKE
Department of Educational Technology,
University of Ilorin, Ilorin, Nigeria.
(Orcid.org/0009-0007-0621-5845)
Ibisanya2@unilorin.edu.ng; 08066987123

Musiliu Adekola, ADEROJU
Department of Educational Technology,
University of Ilorin, Ilorin, Nigeria.

Adebayo Emmanuel, ALIMI
Department of Educational Technology,
University of Ilorin, Ilorin, Nigeria.

Caleb ASIYANBOLA
Department of Educational Technology,
University of Ilorin, Ilorin, Nigeria.

H. B. MUHAMMEDRAJI
Department of Educational Technology,
University of Ilorin, Ilorin, Nigeria.

Abstract
An online learning management system (OLMS) is a web-based instrument used for planning, implementing, and evaluating educational processes. The increasing adoption of OLMS in higher education highlights the need for research, particularly in developing countries. This study examined students' perceptions on the use of OLMS for learning at the University of Ilorin, explored the impact of OLMS on students' learning, investigated the challenges encountered by students, and explored gender influences on perceptions and impact. Using a descriptive survey technique, 200 undergraduates from the Faculty of Education were randomly sampled. Data analysis involved frequency, mean scores, and t-tests. Results indicated that students found OLMS beneficial [2.98 > 2.45] and impactful [2.90 > 2.45], with few challenges [2.39 < 2.45]. There were no significant gender differences in perceptions [.080 > 0.05] or impact [.803 > 0.05]. The study concluded that Online Learning Management Systems (OLMS) significantly improve teaching and learning by offering interactive tools to boost student engagement, enabling personalized learning experiences, and providing real-time feedback. It is recommended that universities establish dedicated support systems for online learning and promote faculty training to maximize the effective use of OLMS.

Keywords: Information and Communication Technology, Learning, Online Learning Management Systems, and Perception.

Introduction

Integrating Information and Communication Technology (ICT) into education is crucial for fostering the academic growth of students at all educational levels. This shift from traditional teaching methods, such as the old chalk-and-board approach, to more innovative instructional practices brings several important benefits. Technology has greatly enhanced education by facilitating online classrooms, mobile learning, interactive whiteboards like the SMART Board, instant messaging, and texting (Mohammed, 2018). Information and Communication Technology (ICT) has established itself as a vital and widely embraced tool for enhancing teaching and learning in higher education institutions (Hanushek & Woessmann, 2019). In the 21st century, ICT has revolutionized traditional educational practices, leading to significant changes in teaching and learning approaches.

Moreover, ICT is not a static resource; it continuously evolves and adapts to fulfill the demands of human development and existence. Consequently, it plays a vital role in contemporary education, fostering innovation and enriching the overall learning experience. These advancements in ICTs, with computers and the internet leading the way in innovation, make life easier for people by allowing them to complete a variety of tasks in their daily and professional lives regardless of time or location. However, in addition to all of these advantages, there are certain complaints that come with the territory: Physical, physiological, and psychological health difficulties such as joint pain and disease, eye discomfort and optical disorders, radiation, computer anxiety, and panic attacks have all been widely documented (Ahmet & Yusuf, 2020).

According to UNESCO, information and communication technology (ICT) is an interdisciplinary field that uses scientific and management techniques to process information efficiently (Ratheeswari, 2018). As a result, it employs many technologies to record, communicate, gather, analyze, store, and distribute the information required to complete a certain task more quickly (Pedagoo, 2020). The COVID-19 pandemic necessitated a rapid transition to digital technologies for many higher education institutions, especially in economically challenged regions, to maintain educational continuity. In this landscape, Online Learning Management Systems (OLMS) emerged as vital tools for enabling remote learning and supporting academic activities (Adelakun & Omolola, 2020).

An Online Learning Management System (OLMS) is a web-based platform that organizes, implements, and assesses learning processes. The functionalities of an OLMS can be grouped into

four categories: distribution tools, communication tools, interaction tools, and course administration tools (Dindar, 2021). Essentially, OLMSs are software applications designed to manage, document, track, report, automate, and facilitate the delivery of educational courses, training programs, learning resources, and comprehensive development initiatives. The concept of a learning management system evolved from the e-learning sector, which now constitutes the major segment of the educational technology market. Learning Management Systems first appeared in the late 1990s (Raza et al., 2021).

The COVID-19 pandemic forced a swift transition to remote learning, significantly boosting the adoption of Online Learning Management Systems (OLMS). These platforms excel at identifying training and learning gaps by analyzing and reporting the data they collect (Toquero and Cathy, 2020). While OLMS is primarily designed for delivering online education, they can also serve multiple functions, including offering platforms for asynchronous and synchronous courses. In higher education, an OLMS Online Learning Management Systems (OLMS) can streamline classroom management for both instructor-led and flipped classrooms (Ahmet & Yusuf, 2020). Modern OLMS platforms leverage intelligent algorithms to personalize the learning experience. These systems analyze a user's abilities and learning history to suggest relevant courses. Additionally, they extract metadata from learning materials to further refine these recommendations, ensuring a more tailored and effective learning journey

Most colleges worldwide use Learning Management Systems (LMS) alongside traditional classrooms. This use was previously limited and simple, similar to an assistant tool, but it has now gotten more advanced and accepts numerous requirements to be in one system. Indeed, there are several reasons for the widespread adoption of eLearning concepts. The rapid advancement of Information and Communication Technology (ICT) is a key driver of change. This enhancement enables many academic institutions to simply implement some of the new ICT-based features, such as broadcast high-definition movies, video conferences, and virtual classrooms. The Saudi case is similar to the worldwide case in that the country recently enhanced its ICT infrastructure and all 28 public universities employ LMSs as part of their instructional process (Abdulaziz et al., 2019).

Online learning management systems have made significant contributions to teaching, learning, research, and communication, but several problems exist that prevent the effective use of these resources. For example, it is true that the most significant issue in the use of electronic

resources is a lack of ability and knowledge. Technology's influence and impact have grown steadily over the previous three decades, particularly in business and communication. As technology and its influence expand, the number of those advocating for a comparable boom in education also increases. Business owners, government officials, and educational leaders all seem to agree that students must learn to use modern technology, especially computers, in order to best prepare for life following graduation (Weiler, 2018).

According to Andrew (2018), the adoption and effective use of OLMS include difficulties such as budgeting, acquisition, compliance, demand, access, bibliographic control, and licensing. Concerns occur when the access environment is underdeveloped and devices and software are costly to purchase and maintain. According to Damast (2016), one of the most significant issues for e-book users has been the difficulties they have encountered when utilizing them. The study further opined that the same issues hampered Amazon's pilot experiment, which involved distributing e-readers to students at seven different universities as a replacement for heavy textbooks.

Gender refers to the socio-cultural traits and roles attributed to males and females in any community. Most countries, particularly in Africa, realize that women lag behind men in their usage of technological gadgets (Hallberg et al., 2018). However, investigations have produced inconsistent results in this regard. The way that students interact with LMS is significantly influenced by their gender. While male students can be more concerned with content quality, female students are more likely to value usability and simplicity of navigation. Depending on how each gender uses the LMS, this difference may result in distinct learning outcomes (Owusu-Bempah, Opoku, & Sam-Mensah, 2022). Teachers' perception about utilizing any LMS for teaching purposes have also been connected to gender issues. Research suggests that there may be differences in how male and female educators see the usefulness of learning management systems. For example, compared to female teachers, male teachers frequently perceive greater efficacy and confidence while utilizing technology, which may have an impact on how they interact with LMS platforms (Aditya & Permadi, 2022). Understanding these dynamics is crucial for creating inclusive and effective online learning environments. Some studies suggest that gender can influence the adoption and utilization of technology in education. For example, women may face unique challenges with technology that men do not. This can impact how effectively they use ICT tools in the classroom. This, among others can hinder their ability to use these technologies

independently, potentially limiting their overall engagement and effectiveness in utilizing ICT for educational purposes. Such dynamics highlight the importance of addressing gender disparities in technology access and support, ensuring that all educators and learners can fully benefit from the potential of ICT in education. Humble (2020).

Statement of the Problem

A growing number of higher education institutions in poor countries, including Nigeria, have and continue to implement blended learning. Teachers strive to boost student engagement by making the learning process more independent and personalized. Using learning management system software as a blended learning tool has the potential to improve classroom efficiency. The scarcity of research on learning management systems, particularly in developing countries, necessitates a deeper examination of undergraduates' perceptions of and attitudes toward using them for learning at the University of Ilorin.

The usage of OLMS has helped several nations throughout the world successfully develop remote education programs. The concept has evolved into an effective technique for improving teaching and learning in a more sophisticated educational setting. The COVID-19 emergency, which posed a significant challenge for higher education institutions, demonstrated that learning management systems are intermittently used for academic programs in Nigeria. Many educational institutions were taken aback by the sudden cessation of academic activities in Nigeria caused by COVID-19. However, there is a shortage of accessibility and technical resources required to ensure uniformity in the learning process; therefore, lecturers and students should build digital skills to overcome these problems. The researcher discovered that none of the previous research traced Faculty of Education students' perceptions of using OLMS for learning at the University of Ilorin. Hence, this research investigated how an Online Learning Management System (OLMS) could be used to improve students' learning at the University of Ilorin.

Purpose of the Study

This study investigated Online Learning Management System as an essential resource for students' effective learning in University of Ilorin. Key research areas included: examining students' perceptions and experiences with OLMS, investigating the impact of OLMS on student learning outcomes, exploring the challenges faced by students in utilizing OLMS; and determining

gender influence on students' perceptions, usage, and learning outcomes related to OLMS in University of Ilorin.

Research Questions

This study addressed the following research questions:

1. What are students' perceptions of using Online Learning Management Systems for learning at the University of Ilorin?
2. What is the impact of Online Learning Management Systems (OLMS) on students' effective learning outcomes at the University of Ilorin?
3. What are the challenges faced by students in using Online Learning Management Systems at the University of Ilorin?

Research Hypotheses

The following null hypotheses were formulated and tested at the 0.05 level of significance.

H_{O1}: There is no significant gender difference in students' perceptions of using Online Learning Management Systems at the University of Ilorin.

H_{O2}: There is no significant gender difference in the impact of Online Learning Management Systems on student learning outcomes at the University of Ilorin.

Methodology

The descriptive research of the survey type was employed to achieve the purpose of this study. This is because the objective of a descriptive study is to represent a precise detail of respondents, events or situations. The survey research approach is considered as the preferred choice by the researcher for collecting original data from a large population in order to generate relevant information from the respondents on online learning management system (OLMS): a veritable tool for students' effective learning in University of Ilorin. The population for this study was all undergraduate students in University of Ilorin, while the target population of the study comprised all students in faculty of education in University of Ilorin.

The nine departments in Faculty of Education were sampled. Sample refers to a portion of population that the researcher selects for the purpose of data collection and analysis. It could also be a small group of elements drawn through a definite procedure from a specified population.

Sampling refers to the process which a group of representative individuals is selected from a population for the purpose of the study. Simple random sampling techniques were employed to select respondents from each of the nine departments within the Faculty of Education. A total of 200 students were included in the sample size for this study.

A researcher-designed questionnaire titled 'Online Learning Management Systems: An Essential Resource for Effective Learning and Entrepreneurial Skill Development' was employed to gather data. The questionnaire was divided into four sections (A, B, C and D): demographics, student perceptions of OLMS, the impact of OLMS on student learning outcomes, and the challenges faced by students in utilizing the OLMS. The items in Sections B, C, and D of the questionnaire utilized a four-point scale response mode, consisting of "Strongly Agree (SA)," "Agree (A)," "Disagree (D)," and "Strongly Disagree (SD)."

Results

Table 1: Distribution of the Participants Based on Gender

Gender	Frequency	Percentage	Cumulative
Male	92	46.0	46.0
Female	108	54.0	100.0
Total	**200**	**100.0**	

Table 1 shows that the total number of Students that participated in this study was 200. Out of these 200 Students, 92(46.0%) were male while 108(54.0%) were female. The result from table 1 shows that female students participated more than male students in the study.

Table 2: Distribution of the Respondents Based on Department

Department	Frequency	Percentage	Cumulative
Science Education	13	6.5	6.5
Social Sci. Education	13	6.5	13.0
Counselor Education	20	10.0	23.0
Adult & Primary Edu.	16	8.0	31.0
Environmental Health Edu.	21	10.5	41.5
Art Education	29	14.5	56.0
Human Kinetic Edu.	31	15.5	71.5
Educational Technology	36	18.0	89.5
Educational Management	21	10.5	100.0
Total	**200**	**100%**	

Table 2 shows that out of the respondents sampled, 13 representing (6.5%) are from Science Education Department, 13 representing (6.5%) are from Social Science Education Department, 20 representing (10.0%) are from Counselor Education Department, 16 representing (8.0%) are from Adult & Primary Education, 21 representing (10.5%) are from Environmental Health Education Department, 29 representing (14.5%) are from Art Education Department, 31 representing (15.5%) are from Human Kinetic Education Department, 36 representing (18.0%) are from Educational Technology Department while 21 representing (10.5%) are from Educational Management Department. This shows that respondents from Educational Technology Department represent more than other department in this study.

Research Question One: What are students' perceptions of using Online Learning Management Systems (OLMS) for learning at the University of Ilorin?

Table 3: Frequency and Mean Score on Students' Perception of Using Online Learning Management Systems for Learning at the University of Ilorin

S/N	Item	SA	A	D	SD	Mean
1.	The use of OLMS would improve the quality of instruction.	91	63	19	27	3.09
2.	Using OLMS provides me with information that will leads to better understanding of course content.	70	103	21	6	3.19
3.	OLMS will enhance my performance in the learning process	81	67	39	13	3.08
4.	OLMS improve student learning as it gives students opportunity to access learning content anywhere and anytime.	64	80	43	13	2.98
5.	It offers learners with easy accessibility to course contents.	75	89	22	14	3.13
6.	I can use OLMS to support my learning.	66	73	33	28	2.89
7.	I perceive that OLMS hinders efficient use of lecture time.	47	69	46	38	2.63
8.	Learning with OLMS makes learning more effective.	49	92	39	20	2.85
	Grand Mean (X)					**2.98**

Key: SD = Strongly Disagree, **D**= Disagree, **A** = Agree, **SA** = Strongly Agree

Decision Value: *Not Useful* 0.00-2.49, *Useful* = 2.50-4.00

Table 3 shows the students' perception towards the use of Online Learning Management System for learning in University of Ilorin. It was revealed from the table 3 that all of the items received a means score above the benchmark of 2.50 with "Using OLMS could provide me with information that will leads to better understanding of course content" having the highest score of = 3.19 and "I perceive that OLMS could hinder efficient use of lecture time" with lowest score of = 2.63. Based on the value of the Grand Mean (2.98 out of 4.00 maximum value obtainable) which falls within the decision value for *Useful*, it can be inferred that University of Ilorin students perceived Online Learning Management System to be useful for learning.

Research Question Two: What is the impact of Online Learning Management Systems on students' effective learning outcomes at the University of Ilorin?

Table 4: Frequency and Mean Score of the Impact of Online Learning Management System on Students at the University of Ilorin

S/N	Item	SA	A	D	SD	Mean
1.	I performed better in my academics when I utilized the Online Learning Management System	73	76	35	16	3.03
2.	Online Learning Management System helped me to source for relevant information which aid my academic performance.	77	79	30	14	3.10
3.	OLMS allow me to explore, share, engage, connect and learn contents in a meaningful way.	107	75	15	3	3.43
4.	I find it easy to do my assignment with the use of OLMS	65	67	40	28	2.85
5.	It is easy to access, store and retrieve information during examination through OLMS.	41	106	31	22	2.83
6.	OLMS help to improve my problem-solving skill which influenced my academic performance.	60	91	29	20	2.10
7.	OLMS promote personalized and better learning outcomes.	63	83	33	21	2.94
8.	Using OLMS for learning makes learning very interesting, effective, efficient and as well influenced my academic performance	44	97	50	9	2.88
	Grand Mean (X)					**2.90**

Key: **SD** = Strongly Disagree, **D**= Disagree, **A** = Agree, **SA** = Strongly Agree

Decision Value: *Negative*=0.00-2.49, *Positive* = 2.50-4.00

Table 4 shows the impact of Online Learning Management System on students learning in University of Ilorin. It was revealed from the Table 4 that almost all the items received a means score above the benchmark of 2.50 with 'OLMS allow me to explore, share, engage, connect and learn contents in a meaningful way' having the highest score of = 3.43 and 'OLMS help to improve my problem-solving skill which influenced my academic performance' with lowest score of = 2.10. The grand mean score of 2.90 out of a maximum of 4.00, which falls within the range indicating a positive perception indicates that students generally appreciate the benefits of OLMS in enhancing their educational engagement and success.

Research Question Three: What are the challenges faced by students in using Online Learning Management Systems at the University of Ilorin?

Table 5: Frequency and Mean Score of the Challenges of Using Online Learning Management System by Students in University of Ilorin

S/N	Items	SA	A	D	SD	Mean
1	Learning became stressful and much tedious when learning with Online Learning Management System.	51	71	71	7	2.83
2	I am not technically inclined to use the platform.	20	95	37	48	2.44
3	There is always a network problem while attempting to learn with OLMS.	23	50	58	69	2.14
4	I lost focus using OLMS unlike traditional learning.	12	97	55	36	2.43
5	OLMS was hard to navigate and that make it difficult for me to use.	24	68	41	67	2.25
6	Poor power supply affects the use of OLMS for learning.	46	69	35	50	2.56
7	Cost of purchasing data for internet services affects the use of OLMS for learning.	9	95	42	54	2.30
8	My lecturers' teaching style does not encourage the use of OLMS.	24	74	53	49	2.37
9	Lack of training hampers for student efficiency to utilize OLMS.	16	88	50	46	2.37
10	Learning became more tedious when learning with OLMS.	24	67	41	68	2.24
	Grand Mean (X)					**2.39**

Key: SD = Strongly Disagree, **D**= Disagree, **A** = Agree, **SA** = Strongly Agree

Decision Value: *Negative* =0.00-2.49, *Positive* = 2.50-4.00

Table 5 provides insights into the challenges students at the University of Ilorin face when using the Online Learning Management System for their studies. A key finding from the data is that nearly all challenges listed in the table had a mean score below the established benchmark of 2.50. This suggests that these challenges are prevalent and pose significant obstacles to effective learning for a considerable portion of the student population.

Hypotheses Testing:

Hypothesis One: there is no significant gender difference in students' perceptions of using Online Learning Management Systems at the University of Ilorin.

Table 6: t-test Showing Gender Differences in Students' Perceptions of Using Online Learning Management Systems at the University of Ilorin.

Gender	N	X	SD	df	t	Sig.(2-tailed)	Decision
Male	92	24.36	4.03				
				198	1.76	.080	Not Rejected
Female	108	23.35	4.04				
Total	**200**						

Table 6 indicates that with 198 degrees of freedom (Df), the t-value is -1.76, resulting in a p-value of .080. The p-value exceeds the alpha level of 0.05, leading to the failure to reject the null hypothesis. This finding indicates that there is no statistically significant difference in students' perceptions of the Online Learning Management System based on gender at the University of Ilorin. Furthermore, an examination of the mean scores reveals no substantial differences between male and female students in their perceptions of the OLMS.

Hypothesis Two: there is no significant gender difference in the impact of Online Learning Management Systems on student learning outcomes at the University of Ilorin.

Table 7: t-test Showing Gender Differences in the Impact of Online Learning Management Systems on Student Learning Outcomes at the University of Ilorin

Gender	N	X	SD	Df	T	Sig.(2-tailed)	Decision
Male	92	23.95	2.78				
				198	-.249	.803	Not Rejected
Female	108	24.06	3.36				
Total	**200**						

Table 7 shows that with 198 degrees of freedom (Df), the t-value is -0.249, leading to a p-value of 0.803. As the p-value exceeds the alpha level of 0.05, the null hypothesis cannot be rejected. This suggests that there is no statistically significant difference in the impact of the Online Learning Management System (OLMS) on student learning outcomes between male and female students at the University of Ilorin. Furthermore, an analysis of the mean scores did not reveal any

substantial gender-based disparities in the effectiveness of the OLMS in enhancing student learning.

Discussion of Findings

This research provides new empirical insights into the Online Learning Management System (OLMS) as an effective tool for improving student learning at the University of Ilorin. The findings revealed that students perceive OLMS as a valuable asset, indicating a positive attitude among undergraduates toward its educational use. This result supports Sisay (2018), who found that students generally hold favorable views of Online Learning Management Systems. Furthermore, Buabeng-Andoh (2015) posited that the perceptions of both students and teachers regarding the usefulness and usability of technology significantly influence its application and integration into teaching and learning.

Furthermore, the results showed that the OLMS has a positive effect on students' learning performance, which aligns with the findings of Nassoura (2018) that many students appreciate the OLMS for its motivational and performance-enhancing qualities. Buabeng-Andoh (2015) further emphasized that the successful implementation of OLMS in instruction heavily relies on students' perceptions and their readiness to engage with the system.

The third objective explored the challenges faced by students at the University of Ilorin when using the online learning management system. The findings indicated that students encounter several difficulties, corroborating Joseph's (2020) earlier findings that transitioning from traditional classroom settings to virtual learning via OLMS significantly alters the learning experience. Technical challenges, such as connectivity issues, delays, and bandwidth constraints, were identified as contributing factors to the difficulties experienced during online learning activities.

There is no significant gender difference in students' perceptions of the OLMS at the University of Ilorin. This finding is consistent with the research of Sisay (2018), who also found no significant gender-based differences in student perceptions of OLMS usage. However, it contradicts the findings of Orewere et al. (2020), which suggested that male pre-service teachers have a more positive perception of OLMS than their female counterparts.

Similarly, the findings revealed no significant difference in the impact of the OLMS on students' effective learning based on gender. These findings align with the research of Ahmad

(2019), which did not find significant gender differences in students' overall technology usage for learning purposes. Conversely, it challenges the conclusions of Goswami and Dutta (2016), who reported that gender significantly influences the acceptance of new technologies in educational settings.

Conclusion

Learning management systems are revolutionizing education and educational institutions in remarkable ways. A variety of Online Learning Management Systems (OLMS) are currently available for use in teaching and learning processes. In today's technology-centric world, especially in education, integrating e-learning technologies presents both challenges and opportunities for educators and institutions. While these systems facilitate innovative teaching methods, they also necessitate the overcoming of barriers such as technical training, infrastructure support, and pedagogical adjustments. LMS platforms have the potential to significantly enhance teaching and learning, providing students with essential knowledge, skills, and competencies needed to succeed in a rapidly digitizing global marketplace. Effective utilization of specific OLMS features, such as virtual labs for science courses or discussion forums for collaborative projects, can greatly enhance students' academic success by increasing engagement, improving knowledge retention, and fostering critical thinking skills. Moreover, LMS systems allow students to spend more time interacting with instructors while reducing the time spent on administrative tasks, ultimately enriching the overall learning experience

Acknowledgement

References

Abdulaziz, A., Harun, C., Alex, K., Firoz, A., & Hamed, A. (2019). Utilization of learning management systems in higher education system: A case review for Saudi Arabia. *2nd International Conference on Energy and Power.* [1] 371-737. Sydney, Australia: Elsevier Ltd

Adelakun, N, O., & Omolola, S, A. (2020). A Pragmatic Study on E-Learning System for Higher Education in Developing Countries. *Proceedings of the 1st National Conference on Research and Innovation Through Academia-Industry Synergy: Panacea for*

Technological and National Development in Post COVID-19 Era, Nigerian Society of Engineer, Ilaro Branch, 14–20. https://doi.org/https://doi.org/10.6084/m9.figshare.14702739.v1

Ahmad, H. (2019). Gender differences in students' utilization of electronic information resources in Ramat library, University of Maiduguri, Nigeria. *Maiduguri*. *Journal of social science and community resources implementation* 2(5),6-26.

Ahmet N. Ç. & Yusuf L. Ş. (2020). Technostress Levels of Social Network Users Based on ICTs in Turkey Department of Computer Education and Instructional Technology European Journal of Social Sciences. 23(2), 171-183

Andrew. O. (2018). The utilization of eBooks in medical sciences' graduate programmes in Makerere institution: The Case of Students of Masters of Medicine In Internal Medicine and Masters Of Veterinary Preventive Medicine.

Buabeng-Andoh, C. (2015). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 8*(1), 136-155.

Damast. A. (2016). E-Book Readers Bomb on College Campuses. Bloomberg Businessweek.Retrievedfromhttp://www.businessweek.com/bschools/content/jun2010/bs 20100610_200335

Dindar, M., Suorsa, A., Hermes, J., Karppinen, P., & Näykk, P. (2021). "Comparing technology acceptance of K-12 teachers with and without prior experience of learning management systems: A Covid-19 pandemic study". *Journal of Computer Assisted Learning.* 37(6), 1553–1565

Goswami, A., & Dutta, S. (2016). Gender differences in technology usage - a literature review. *Open Journal of Business and Management, 4*, 51-59. Retrieved March 28, 2019, from http://dx.doi.org/10.4236/ojbm.2016.41006

Hallberg, D., Kulecho, M., Kulecho, A., & Okoth, L. (2018). Case Studies of Kenyan Digital Villages with a Focus on Women and Girls. *Journal of Language, Technology & Entrepreneurship in Africa, 3*(1), 255-273.

Hanushek, A. B., & Woessmann, C. A. (2019). *The Relationship of Test Scores and Growth, 1960-2000.*

Humble. (2020, February 11). Gender Differences in Students' Performance in Biology. *Modish Project*. https://www.modishproject.com/gender-differences-in-students-performance-in-biology-a-case-study-of-selected-secondary-schools-in-eket-l-g-a/

Joseph Yawson (2020), Covid-19 and E-learning: the challenges of students in tertiary institutions Retrieved from online: https://doi.org/10.37256/ser.212021422

Mohammed, A. (2018). The Impact of Technology on Education. *Al-Nasser University Journal*, 221-229.

Nassoura, A. B. (2018). Students' Acceptance of Mobile Learning for Higher Education in Saudi Arabia. *American Academic & Scholarly Research Journal, 4*(2). Retrieved from http://aasrc.org/aasrj/index.php/aasrj/article/download/248/188

Orewere, E., Hassan, B., Yahya, K., & Ahmed, M. (2020). The Impact of Learning Management System in Federal College of Forestry, Jos - A Case Study. *IIARD International Journal of Geography and Environmental Management; IIARD – International Institute of Academic Research and Development, 6*(1), 60-72. Retrieved from www.iiardpub.org

Pedagoo. (2020). *What are the Uses of ICT in Education?* Media Interactiva Group.https://pedagoo.com/uses-of-ict-in-education

Ratheeswari, K. (2018). Information Communication Technology in Education. *Journal of Applied and Advanced Research, 3*, 45–47. https://doi.org/https://dx.doi.org/10.21839/jaar.2018.v3S1.169

Raza SA, Qazi W, Khan KA, Salam J (April 2021). "Social Isolation and Acceptance of the Learning Management System (LMS) in the time of COVID-19 Pandemic: An Expansion of the UTAUT Model". *Journal of Educational Computing Research.* 59 (2): 183–208. doi:10.1177/0735633120960421. ISSN 0735-6331. PMC 7509242.

Sisay, A. W. (2018). University students' perception and utilization of technology for learning: The case of Haramaya University. *International Journal of Pedagogy, Policy and ICT in Education*, 6(1),17-32.

Toquero, Cathy Mae (2020). "Challenges and Opportunities for Higher Education amid the COVID-19 Pandemic: The Philippine Context". Pedagogical Research. 5 (4): em0063. doi:10.29333/pr/7947. ISSN 2468-4929. S2CID 218823128.

Weiler, S. (2018). Focused Ubiquity: A Purposeful Approach to Providing Students with Laptops. *educational technology and society, 17*(4), 278-288. Retrieved from https://www.researchgate.net/./282701365_Focused_Ubiquity_A_Purposeful_Approac.

Aditya, B. R., & Permadi, A. (2022). Gender factor in designing features of a learning management system in higher education. *Atlantis Press*. https://www.atlantis-press.com/article/125940741.pdf

Owusu-Bempah, E., Opoku, D., & Sam-Mensah, R. (2022). Gender differences in e-learning success in a developing country context: A multi-group analysis. *E-Journal of Education*, 3(4), 410-420. https://www.ej-edu.org/index.php/ejedu/article/view/410