ASSESSING COLLEGES OF EDUCATION LECTURERS PERSPECTIVES OF ENHANCING SCIENCE EDUCATION WITH LEARNING MANAGEMENT SYSTEMS IN OYO TOWNSHIP

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Abstract
Evidence in research indicated the efficacy and efficiency of Learning Management Systems (LMSs) in different fields of study. Many lecturers are yet to adopt the LMSs in their course interactions with the students. There is also paucity of reports on lecturers' perspectives of the innovative technological software in science education. Therefore, this study investigated Colleges of Education (COE) lecturers' perspectives of enhancing science education with learning management systems in Oyo township. A mixed method in descriptive survey research design was adopted for the study, randomly sampled 261 lecturers from the two COE in Oyo township. Two research questions, seven null hypotheses guided the study. Two self-constructed and validated instruments - Lecturers' perspectives of Enhancing Science Education with Learning Management System Questionnaire (LVESLQ, R=.73) and Lecturers' perspectives of Enhancing Science Education with Learning Management System Interview (LVESLI, IRR=.70). Data were analysed with thematic analysis, frequency counts, percentages, mean, standard deviation, t-test and ANOVA. Results indicated that the lecturers had low perspectives of enhancing science education with learning management systems in Oyo township. The perspective was significant (Mean=92.74, df-260, t=151.45, p<.5). Gender (df-259, t=2.36, p<.5), age F(3, 257)=9.60,p<.5), schools of affiliations (F(5, 255)=5.47,p<.5), levels of education F(2, 258)=11.72,p<.5), years of lecturing F(3, 257)=8.11, p<.5) and present academic status (F(4,256)=3.84,p<.5) significantly differentiated the lecturers' perspectives. The COE management should organize seminars and workshops on enhancing science education with LMSs, lecturers too should change their perspectives and adopt LMSs in science education.

Keywords: Lecturers' perspectives; Science education; Learning Management Systems (LMSs)

Introduction
Science education is the aspect of education that impacts scientific ideas, knowledge and skills to the recipients that are not traditionally member of the science community. Science education according to the National Policy on Education (2013) is meant to cultivate inquiry, knowledge generation, knowing national mind for the conduct of a good life and democracy, to produce scientists, for national development; to service study technology and the cause of technological development and to provide physical world, the forms and the conduct of life.

A very important question today is, has the objectives of Science Education been achieved? Is there scientific literacy at the basic level of education in Nigeria? Are the senior secondary school students in Nigeria scientifically literate? The pre-service Science Education teachers in tertiary institutions in Nigeria, are they scientifically literate? Are these students being taught using technology and reflective thinking? The National Science Teaching Association (NSTA) in America stipulates that science should be taught with technology and reflective

thinking to enthuse the learners' interest, sustain their attention, stimulates their innate and latent skills, enhance, enable, enrich and empowers their science learnability (Olagunju & Adesina, 2017; Adesina, 2019; Ige & Oke, 2019; Abebiyi, 2019; Okebukola, 2021; Obanya, 2021; Gambari, 2021).

Technology Aided Instruction (TAI) in Computer Assisted Instruction (CAI), Power Point Presentation, Games, Tutorials, Drill and Practice, problem-solving, virtual laboratory, mobile science learning and many other technological materials have impacted both the attitudinal, cognitive and the psychomotor domains of learning outcomes in science (Gambari, 2021; Olagunju & Adesina, 2017). Such systematic tools designed for the Science Education effective and efficient, mutual interaction between the lecturers (instructional facilitators) and the learners is known as Learning Management System (LMS).

According to Kant, Prasad and` Anjali (2021), a learning management system is a software application for the administration, documentation, tracking, reporting, automation, and delivery of educational courses, training programs or learning and development programs. LMSs are designed to make teaching and learning easier for both the lecturers and the learners, allows identification of course goals, assessing individuals and organizational learning goals, tracking process towards meeting those goals and collecting, analyzing and presenting the data for supervising the learning process. Using LMSs in Science Education is cost effective, learning consistent, Science Education learning process regulatory compliance and improved learning outcome productivity through optimum learners' interactivity and engagement (Taufiqurrochman, Muslimin, Rofiki & Abah, 2019; Nguyen, 2021).

Common LMSs for effective and efficient Science Education are canvas instructure, moodle Xperiencify, GyrusAim, Knolyx, Cornerstone Learning, LearnUpon LMS, 360 learning, GoSkills, LearnWorlds, Decebo, formative, LMSTalent and many other too numerous to enlist on a singular paper, common to all the LMS are the interphases for course moodle uploading, embellish of videos and related games online that add values to the course contents (Kant, Prasad & Anjali, 2021). Almost all of the LMSs have the interphase for posting assignments to the class, grading the students and hosting conference lectures with the. The LMSs when adopted by the lecturers avail the opportunities to interact with the students 24/7 across the semester of instruction, it steals into the student's unspent non-school hours, it creates activities that succinctly fit the LMS into the blended cum flipped instructional pedagogy.

LMSs are premised on the constructivists' learning theory of Glerserfeld, Vygosky, Druner, Dewey (Ehindero, 2014). It is a technological package based on instructional design like ADDIE (Analysis, Design, Development, Implementation and Evaluation). The succinct design of the instruction in LMS proceed on enquiry mode where questions are presented, prompting thinkability and reflections on the identified learning objectives, the LMSs allows the learners to learn, re-learn, over-learn and debug (delearn) inconsistency in learning. it allows the process of assimilation of facts along with accommodation of new learning ideas in the course (Piaget, 1973). LMSs sustains learning interest to the extent that the learners can decode the encoded instruction and construct such in their own ideas which makes their learning relatively-permanent change in behaviour (learning outcome).

The study of lecturers' perspectives of enhancing science education with learning management systems is equally premised on extension of the Theory of Reasoned Action (TRA) of Fishbein and Ajzen (1975; 2010), the Theory of Planned Behaviour (TPB) developed by Icek Ajzen (1971). The theory of planned behaviour understand and predict

behaviours and that behaviours are immediately determined by behavioural intentions, circumstances and perceived behavioural control. It submits that people's behavioural intentions are subjected by the combination of three factors: attributes towards the behaviour, subjective norms and perceived behavioural control.

Empirically, Borboa, Joseph, Spake and Yazdanparast (2014) examined perceptions and use of learning management system tools and other technologies in higher education adopting descriptive survey design found that the students perceived LMS as effective and efficient tool in enhancing and empowering their teaching and learning. Kadir and Aziz (2016) investigated learning management system of higher education institution. Adopting survey research method and sampled 150 students in tertiary institutions, Descriptive statistics of mean, median and mode as well as the inferential statistics of regression analysis revealed that students perceived LMS as an efficient and effective tool in teaching and learning.

Holmes and Prieto-Rodriguez (2018) studied student and staff perceptions of a learning management system for blended learning in teacher education focusing on accessibility and interactivity of the LMS. A descriptive survey design was adopted for the research. Forty-six staff and 470 undergraduate and postgraduate faculty of education students were sampled. Differences were found between student and staff perspectives in relation to accessibility of online materials, with students rating its contribution to their learning higher than staff. However, the two groups held similar perspectives with regards to the effectiveness of LMS tools to enable interactivity. The results further revealed the importance of the key choices made by teaching staff in deciding which LMS tools to use in order to maximise student participation and learning.

Taufiqurrochman, Muslimin, Rofiki and Abah (2019) described students' perceptions as users of the LMS application. The study was descriptive research. 150 students involved in this study, 75 percent chose the blended learning model for learning Arabic. The results of students' perceptions regarding these features indicate that they understand all the functions of the LMS features. About learning Arabic, they assessed that all LMS applications had the potential to be used for learning Arabic. The most significant potential is the ability of the LMS application in enhancing learners speaking, writing, and grammar capability.

Nguyen (2021) in a study on satisfaction of users towards learning management system at international University Vietnam National University HCMC found that there is significant impact of LMS on students' learning satisfaction including improved interaction and relationships building and sustenance in lesson and an invariable increase in perception of LMS effectiveness. Kant, Prasad and` Anjali (2021) researched into selecting an appropriate learning management system in open and distance learning: a strategic approach identified that LMSs are of various types and sources and makes the decision-making as regards selection of an appropriate LMS strategically crucial requiring adequate consideration of every aspect such as cost, quality, usage, capacity, budget and most importantly priorities and objectives and the students and instructional facilitators perceived that LMS impacts positively on learning outcomes.

Al-Sharhan, Al-Hunaiyyan, Alhajri and Al-Huwail (2021) explored the utilization of Learning Management System (LMS) among instructors and students a case study conducted to identify the utilization of LMS in the Gulf University for Science and Technology (GUST). The results indicated a low percentage of the utilization of LMS functions, in which web-based LMS is more utilized than mobile-based LMS and found that when LMS is used as a

pedagogical tool rather than as an administrative one, the students performed better and perceived the software as more efficient and effective instructional package.

The lecturers' perspectives of enhancing science education with LMSs may be affected by their socio-demographic attributes such as gender, age, school of affiliations, levels of education, years of teaching experience, their academic status, and host of other factors. Volman, *et al.* (2005) reported that girls show a lower attitude to learning ICT based skills from secondary school onwards which later is reflected in lower self-confidence in using computers. Jamieson-Proctor, Burnett, Finger and Watson (2006) found that female teachers are less likely to use ICT in classrooms compared to their male counterparts on account of a lower level of confidence.

Teaching/working experience of teachers is another attribute which may influence implementation of ICT in the classrooms. The existing research shows that there are mixed results to be found in the relationship between teacher's work experience and their use of ICT in the classrooms. For example, Hernandez-Ramos (2005) stated that teachers' understanding of the use of technology for education as well as overall work experience will have a positive impact in building a positive attitude towards ICT. Lau and Sim (2008) also demonstrated that experienced teachers are more willing to use technology in the classroom. At the same time Wachiuri (2015) found that there is no correlation between teacher's work experience and their use of ICT in the classrooms.

Andoh (2012) stated that personal characteristics like gender, age, educational qualifications and teaching experience of the teachers play an important role in effective implementation of ICT in the classrooms. Basargekar and Chandan (2014) examined the factors affecting teachers' perceived proficiency in using ICT in the classroom found that teachers' gender, age, working experience, Subjects taught affects teachers' perceived proficiency in using ICT in the classroom. Badia, Menesses and Sigal (2014) studied factors affecting school teachers 'perceptions of the instructional benefits of digital technology. Preliminary findings suggest that factors such as teaching area, digital literacy, educational ICT training, and Internet access are important predictors of teachers' perceptions of the instructional benefits of digital technology.

Afolabi, Afolabi and Adesina (2018) investigated primary school teachers' perception of advancing Basic Science teaching and learning with technology in Oyo township adopting a descriptive survey design found that while the teachers had significant perception of advancing Basic Science teaching and learning with technology, the perception was not beclоulded by gender, age, qualification and years of the primary school teachers teaching experience. Similar results were found when Adesina and Adesina (2021) studied perception of flipped instructional methodology the differential effects of pre-service science teachers' gender and age, adopting a mixed method in descriptive survey design reported that age and gender did not significantly influence the pre-service science teachers' perception of flipped instructional methodology. With inconclusiveness on the impacts of lecturers' socio-demographic attributes such as gender, age, school of affiliations, levels of education, years of teaching experience, academic status on perspectives of enhancing science education with learning management systems in Oyo township, this study thus investigated the imparts on the lecturers' perspectives of enhancing science education with learning management systems.

Statement of the Problem

In spite of the abundance of research evidence on the efficacy of Learning Management System on the students' learning outcomes in science, social sciences, Arts and Humanities, the use of LMSs remain at the low helm in tertiary institutions in Oyo township. Among the main factors affecting the acceptance and utilization of a new technology like LMSs is the perception of the innovative technique in enhancing, enabling, enriching and empowering science teaching and learning in schools. Research findings have inconclusiveness and dearth of reports on lecturers' age, gender, school of affiliation, years of teaching experiences, educational qualification influence on perception. Thus, this study investigates the colleges of education lecturers' perspectives of enhancing science education with learning management systems in Oyo township vis-à-vis the lecturers' psycho-social variables.

Objectives of the Study

The main thrust of the paper is to investigate the perspectives of the lecturers on enhancing science education with Learning Management System (LMS) in Oyo township. The specific objectives of the study are to:

(i) Assess the differential effects of gender on lecturers' perspectives of enhancing science education with LMS.
(ii) Evaluate the perspectives of lecturers on enhancing science education with L.M.S. based on age.
(iii) Explore the perspectives of lecturers on enhancing science education with L.M.S. based on school of affiliation.
(iv) Examine the perspectives of lecturers on enhancing science education with L.M.S. based on years of teaching experiences.
(v) Explore the perspectives of lecturers on enhancing science education with L.M.S. based on educational qualification.

Research Questions

(i) What is the perspective of the lecturers on enhancing Science Education with LMS?
(ii) Is the perspectives of the lecturers on enhancing Science Education with LMS differ by gender, age, school of affiliation, levels of education, years of lecturing, present academic status?

Hypotheses

Ho_1: There is no significant lecturers' perspectives of enhancing Science Education with LMS.
Ho_2: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on gender.
Ho_3: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on age.
Ho_4: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on School of Affiliation.
Ho_5: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on levels of education.
Ho_6: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on years of lecturing.
Ho_7: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on present academic status.

Methodology

Mixed methods of qualitative and quantitative research type (concurrent triangulation) was adopted for the study. The descriptive survey design focused on the Colleges of Education lecturers' perspectives of enhancing science education with learning management systems in Oyo township to collect both quantitative and qualitative data for the study. All the lecturers in Colleges of Education in Oyo township constitutes the population of the study. There are 415 and 492 lecturers in EACOED and SPED, Oyo respectively. Altogether, 907 lecturers constituted the population of the study. A cluster random sampling technique was adopted to select 278 lecturers using the clusters of lecturers' fields of studies (Sciences, Languages, Arts and Social Sciences, Education, Early Childhood Care and Primary Education and Vocational and Technical Education). Two self-constructed instruments titled: Lecturers' perspectives of Enhancing Science Education with Learning Management System Questionnaire (LPESLQ) and Lecturers' perspectives of Enhancing Science Education with Learning Management System Interview (LPESLI). The original scale of 35 items was revalidated for content, construct and face validities, the scale was reduced to 25 items. The 25-item LVESLS was pilot-studied on 30 lecturers outside the population of the study; the collated data was subjected to Cronbach's Alpha reliability statistics which yielded a value of 0.73. LVESLI was a 5-item scale which was trial-tested and subjected to Kappa Interrater reliability that yielded a value of 0.70. The researcher as well as the assistants went to the sampled lecturers to collect both the quantitative and the qualitative data from the participants. Majority of the lecturers were first briefed about the construct tagged Learning Management System (LMS) alluding to the strangeness of the package (construct – LMS) to the sampled lecturers. The socio-demographic attributes of the respondents were represented in tables of frequency counts and percentages. The research questions were answered with thematic analysis of the focus group interviewed data, mean and standard deviation; t-test and Analysis of Variance (ANOVA) were used to test the hypotheses at 0.05 level of significance.

Results

Answer to the Research Questions

Research Question One: What is the perspective of the lecturers on enhancing Science Education with LMS?

S/N	ITEMS	SA (%)	A (%)	D (%)	SD (%)	Mean	Std. Deviation
1.	Learning management systems (LMS) are useful in enhancing Science Education.	0 (0.0)	4 (1.5)	93 (35.6)	164 (62.9)	1.6130	.51856
2.	LMSs are available for Science Education.	3 (1.1)	55 (21.1)	113 (43.3)	90 (34.5)	2.1111	.76906
3.	LMSs are good technological tools for science teaching and learning.	0 (0.0)	10 (3.8)	122 (46.7)	129 (49.4)	1.4559	.57091
4.	There are adaptable LMSs for science teaching and learning.	6 (2.3)	35 (13.4)	151 (57.9)	69 (26.4)	2.0613	.77712
5.	LMSs are good for teaching and learning	4	2	16	124	1.3180	.75602

	science.	(.8)	(6.1)	(47.5)	(44.1)		
6.	There is no LMS for science teaching and learning.	28 (10.7)	54 (20.7)	142 (54.4)	37 (14.2-)	2.7203	.83800
7.	I am not aware of any LMS for science education.	31 (11.9)	45 (17.2)	133 (51.0)	52 (19.9)	2.7893	.89745
8.	There is scarcity of LMSs on science education.	68 (26.1)	112 (42.9)	64 (24.5)	17 (6.5)	2.1149	.86946
9.	LMSs cannot aid both the lecturers and learners of science education.	33 (12.6)	71 (27.2)	104 (39.8)	53 (20.3)	2.6782	.93842
10.	LMSs are efficient aid to Lecturers and Students of Science education.	4 (1.5)	9 (3.4)	156 (59.8)	92 (35.2)	1.2720	.67278
11.	LMSs are interactive tools for lectures and student of science education.	0 (0.0)	19 (7.3)	146 (55.9)	96 (36.8)	1.2950	.59577
12.	LMSs help student to engage effectively with contents of science education.	2 (.8.0)	21 (8.0)	125 (47.9)	111 (42.5)	1.3065	.71651
13.	LMSs enhance students' adequate comprehension of science education.	0 (0.0)	12 (8.4)	136 (52.1)	103 (39.5)	1.3103	.61975
14.	LMSs empower the student to learn science at their own rate.	2 (0.8)	20 (7.7)	162 (62.1)	77 (29.5)	1.2031	.60204
15	LMSs enrich the teaching – learning process in science education.	4 (1.5)	19 (7.3)	135 (51.7)	101 (38.7)	2.2605	.72399
16.	LMSs cannot enhance students' engagement in science education.	16 (6.1)	45 (17.2)	142 (54.4)	56 (21.5)	2.8966	.83253
17.	LMSs cannot enable students' adequate comprehension of science education.	27 (10.3)	34 (13.0)	112 (42.9)	88 (33.7)	3.0000	.94054
18.	LMSs cannot serve as interactive tool for lectures and students in science education.	16 (6.1)	46 (17.6)	139 (53.3)	60 (23.0)	2.9310	.80565
19.	LMSs cannot empower the student to learn science education at their own pace.	13 (5.0)	39 (14.9)	147 (56.3)	62 (23.8)	2.9885	.76703
20.	LMSs cannot enrich the teaching and learning process in science education.	18 (6.9)	38 (14.6)	126 (48.3)	79 (30.3)	3.0192	.85238
21.	I can accept LMSs for teaching and learning of my course.	6 (2.3)	15 (5.7)	157 (60.2)	83 (31.8)	1.2146	.65040
22.	I will like to adapt LMSs in my field of study.	6 (2.3)	9 (3.4)	155 (59.4)	91 (34.9)	1.2682	.63617
23.	LMSs will be useful in my course of study.	5 (1.9)	12 (4.6)	163 (62.5)	81 (31.0)	1.2261	.61913
24.	I cannot accept LMSs for teaching and learning of my course.	16 (6.1)	20 (7.7)	124 (47.5)	101 (38.7)	3.1877	.82229
25.	It is a waste of time using LMSs in my course for interaction with students.	24 (9.2)	16 (6.1)	109 (41.8)	112 (42.9)	3.1839	.90972
	Weighted mean: 1.93						

From Table 1, majority of the respondents 257 (98.5%) disagreed that Learning Management Systems (LMS) are useful in enhancing Science Education while a comparatively low minority 4 (1.5%) agreed with the assertion with a 1.61 and 0.52 mean and standard deviation scores. 180 (70%) of the respondents agreed that there is scarcity of LMSs on science education whereas on 81 (30%) disagreed with the assertion with a 2.12 and 0.87 mean and standard deviation scores. 242 (92.7%) of the respondents disagreed that LMSs are interactive tools for lectures and student of science education while 19 (7.3%) agreed with the assertion. Relatively low number 21 (8.0%) of the respondents agreed that they can accept LMSs for teaching and learning of their course whereas a larger percentage 240 (92.0 %) of the respondents disagreed with the assertion. 244 (93.5%) of the respondents disagreed with the statement that LMSs will be useful in my course of study whereas a minority of 17 (6.5%) agreed with the assertion. The overall mean score of 1.93 revealed that the Colleges of Education lecturers' perspectives of enhancing science

education with Learning Management Systems (LMSs) in Oyo township is below average score.

The qualitative data revealed that majority of the respondents had not heard about LMSs prior to the administration of the instruments. Thus, only very few had heard and very very few had utilized the LMSs in their lecturing tasks. After the research assistants had briefed the respondents about the LMSs software, its interphases for synchronous and asynchronous interactions, interphases for games, embedded videos, availability of online assignment and technology based test, Immediate Knowledge of Results (IKOR), majority of the interviewed respondents acceded to imbibe the technological software to blend their lectures.

Research Question Two: Is the perspectives of the lecturers on enhancing Science Education with LMS differ by gender, age, school of affiliation, levels of education, years of lecturing, present academic status?

Male respondents when interviewed had better perspective of enhancing science education with learning management systems in Oyo township than their female counterparts. The aged lecturers with higher levels of educational qualifications, also with long service years who invariable had higher academic status in school of Science did have better perspective of enhancing science education with learning management systems in Oyo township than those respondents with low age, non-science oriented schools, low levels of education, less years of teaching experiences and low academic statuses.

Hypotheses Testing

Ho_1: There is no significant lecturers' perspectives of enhancing Science Education with LMS.

Table 2: t-test Analysis of lecturers' perspectives of enhancing Science Education with LMS

Variable	N	Mean	SD	df	t-value	Sig	Remarks
Lecturers' perspective of LMSs	261	92.74	9.89	260	151.45	.000	*S

Table 2 indicates that there is a significant lecturers' perspectives of enhancing Science Education with LMS (N=261, Mean= 92.74, df-260, t=151.45, p<.5). Therefore, the null hypothesis was not accepted.

Ho_2: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on gender

Table 3: t-test Analysis of lecturers' perspectives of enhancing Science Education with LMS based on Gender

Lecturers' perspective of LMSs	N	Mean	SD	df	t-value	Sig.	Remarks
Male	171	93.78	9.56	259	2.358	.019	*S
Female	90	90.77	10.26				

From Table 3, there is a significant difference in lecturers' perspectives of enhancing Science Education with LMS based on gender (N=261, df-259, t=2.36, p<.5). Therefore, the null hypothesis was not accepted.

Ho_3: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on age.

Table 4.0: Analysis of Variance of lecturers' of lecturers' perspectives of enhancing Science Education with LMS based on Age Groups

Sample	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2563.329	3	854.443	9.597	.000
Within Groups	22880.954	257	89.031		
Total	25444.284	260			

Table 4.0 indicates that the Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on age groups is significant (F (3, 257) =9.60, p<.5). Therefore, the null hypothesis was not accepted. To determine the direction of the differences, scheffe posthoc test was conducted and presented in Table 4.1

Table 4.1: Scheffe Posthoc Test of lecturers' perspectives of enhancing Science Education with LMS based on Age Groups

(i) Age	(j) Age	Mean Difference (I - j)	Sig.
50 yrs & above	20 – 29 years	11.09	.002
Years	30 – 39	7.14	.000
Years	40 – 49	1.64	1.000

Table 4.1 reveals that lecturers with 50 years and above had the highest mean score of enhancing science education with learning management systems in Oyo township followed by those with 40-49 years, followed by 30-39 years whereas those with 20 – 29 years had the least mean score of enhancing science education with learning management systems in Oyo township.

Ho_4: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on School of Affiliation.

Table 5.0: Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on School of Affiliation

Sample	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2464.850	5	492.970	5.470	.000
Within Groups	22979.433	255	90.115		
Total	25444.284	260			

Table 5.0 indicates that the Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on school of affiliation is significant (F (5, 255) =5.47, p<.5). Therefore, the null hypothesis was not accepted. To determine the direction of the differences, scheffe posthoc test was conducted and presented in Table 5.1

Table 5.1: Scheffe Posthoc Test of lecturers' perspectives of enhancing Science Education with LMS based on School of Affiliation

(i) School of Affiliation	(j) School of Affiliation	Mean Difference (I - j)	Sig.
Science	Arts and Sos	.01	1.000
	ECCPED	7.31	.004
	Education	5.02	.087
	Languages	1.58	1.000
	VTE	6.73	0.001

Table 5.1 reveals that lecturers in the school of Science had the highest mean score of enhancing science education with learning management systems in Oyo township followed by those in Arts and Social Sciences, followed by those in Languages, Education, VTE whereas those in ECCPED had the least mean score of enhancing science education with learning management systems in Oyo township.

Ho_5: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on levels of education

Table 6.0: Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on Levels of Education

Sample	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2122.817	2	1061.408	11.742	.000
Within Groups	23321.467	258	90.393		
Total	25444.284	260			

Table 6.0 indicates that the Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on levels of education is significant (F (2, 258) =11.72, p<.5). Therefore, the null hypothesis was not accepted. To determine the direction of the differences, scheffe posthoc test was conducted and presented in Table 6.1.

Table 6.1: Scheffe Posthoc Test of lecturers' perspectives of enhancing Science Education with LMS based on Levels of Education

(i) Level of Education	(j) Levels of Education	Mean Difference (I - j)	Sig.
Ph.D.	First Degree	9.61	.000
	Masters	5.32	.001

Table 6.1 reveals that lecturers with Ph.D. had the highest mean score of enhancing science education with learning management systems in Oyo township followed by those Masters' degree whereas those with first degree had the least mean score of enhancing science education with learning management systems in Oyo township.

H06: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on years of lecturing.

Table 7.0: Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on Years of Lecturing Experience

Sample	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2200.449	3	733.483	8.110	.000
Within Groups	23243.835	257	90.443		
Total	25444.284	260			

Table 7.0 indicates that the Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on years of lecturing experience is significant F (3, 257) =8.11, p<.5). Therefore, the null hypothesis was not accepted. To determine the direction of the differences, scheffe posthoc test was conducted and presented in Table 7.1

Table 7.1: Scheffe Posthoc Test of lecturers' perspectives of enhancing Science Education with LMS based on Years of Lecturing Experience

(i) Years of Lecturing Experience	(j) Years of Lecturing Experience	Mean Difference (I - j)	Sig.
16 years and above	1 – 5 years	8.69	.000
	6 – 10 years	6.14	.006
	11 – 15 years	4.25	.105

Table 7.1 reveals that lecturers with 16 years and above had the highest mean score of enhancing science education with learning management systems in Oyo township followed by those with 11 – 15 years, followed by those with 6 – 10 years whereas those with 1 – 5 years of lecturing experiences had the least mean score of enhancing science education with learning management systems in Oyo township.

H07: There is no significant difference in lecturers' perspectives of enhancing Science Education with LMS based on present academic status

Table 8.0: Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on Present academic status

Sample	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1441.336	4	360.334	3.843	.005
Within Groups	24002.947	256	93.762		
Total	25444.284	260			

Table 8.0 indicates that the Analysis of Variance of lecturers' perspectives of enhancing Science Education with LMS based on present academic status is significant (F (4, 256) =3.84, p<.5). Therefore, the null hypothesis was not accepted. To determine the direction of the differences, scheffe posthoc test was conducted and presented in Table 8.1.

Table 8.1: Scheffe Posthoc Test of lecturers' perspectives of enhancing Science Education with LMS based on Present academic status

(i) Present academic status	(j) Present academic status	Mean Difference (I - j)	Sig.
Principal Lecturers	Assistant Lecturer	7.70	.019
	Lecturer III – I	3.22	1.000
	Senior Lecturer	2.00	1.000
	Chief Lecturers	.77	1.000

Table 8.1 reveals that Principal lecturers had the highest mean score of enhancing science education with learning management systems in Oyo township followed by the Chief Lecturers, followed by the Senior Lecturers, followed by Lecturers III - I, whereas the Assistant Lecturers had the least mean score of enhancing science education with learning management systems in Oyo township.

Discussion

From the answered research questions, it was realized that the Colleges of Education lecturers' perspectives of enhancing science education with learning management systems in Oyo township was very low owing to their low awareness of the technological software, Learning Management Software, LMSs. It was identified that majority of the respondents are less cognizant of the interactive software, thus, have low perspective of enhancing science education with the LMSs. It was equally identified that the little explanation of the interphases and the opportunities embedded in the LMSs to the lecturers in the course of the qualitative data collection spurred them into action of longing to learn the new innovation in lecturing. These findings have supports of Olagunju and Adesina (2017). Okebukola (2021), Obanya (2021), Gambari (2021), Al-Sharhan, Al-Hunaiyyan, Alhajri and Al-Huwail (2021) that instructional facilitators have low perceptions of technological software like LMSs in lecturing. The findings contrast the reports of Ugwoke, Edeh and Ezemma (2019) that reported that majority of business education lecturers perceived LMS as an important technological tool and learning environment that supports teaching and learning of accounting courses, helps accounting students and teachers achieve the stated learning objectives, helps in arousing students interest in accounting.

From the tested hypotheses, it was identified that there is a significant lecturers' perspectives of enhancing Science Education with LMS. With the significant perception of the lecturers on LMSs in enhancing science education in Oyo township, there is urgent need to create more awareness on the effectiveness of the technological software in the Colleges of Education in Oyo township. This finding finds supports in Ugwoke, Edeh and Ezemma (2019), Kant, Prasad and Anjali (2021) that the lecturers had a significant perspectives of enhancing teaching and learning with LMSs.

Additionally, the results revealed a significant gender, age, academic qualification, school of affiliation, years of lecturing experiences and present academic status differences in favour of the male, older, more qualified, more years of lecturing experiences and higher academic status. The finding justify that males are more technologically savvy and pragmatic than the female counterparts. It equally indicates that experience, chronological age, professional age that influences the academic status are good predictors of strong perspectives in enhancing science education with LMSs. These finding corroborate Basargekar and Chandan (2014) reports that teachers' gender, age, working experience, Subjects taught affects teachers' perceived proficiency in using ICT in the classroom. It equally finds supports in

Andoh (2012) that personal characteristics like gender, age, educational qualifications and teaching experience of the teachers play an important role in effective implementation of ICT in the classrooms.

Furthermore, the results that revealed a significant gender, age, academic qualification, school of affiliation, years of lecturing experiences and present academic status differences in favour of the male, older, more qualified, more years of lecturing experiences and higher academic status contrasts Afolabi, Afolabi and Adesina (2018) findings that while the teachers had significant perception of advancing Basic Science teaching and learning with technology, the perception was not beclouded by gender, age, qualification and years of the primary school teachers teaching experience. Equally, the results were contrary to the findings of Adesina and Adesina (2021) that age and gender did not significantly influence the pre-service science teachers' perception of flipped instructional methodology.

Conclusion

Precisely, the study focused on Colleges of Education lecturers' perspectives of enhancing science education with learning management systems in Oyo township, from the empirical findings of both the qualitative and the qualitative data analyses, it could be summed that the Colleges of Education lecturers' perspectives of enhancing science education with learning management systems in Oyo township is at low helm, that the lecturers having being hinted of the efficiency and the instructional effectiveness of the LMSs acceded to know more about the learning management system and agreed to utilize the technological software in their future lecturing endeavours. Furthermore, the lecturers' perspectives about enhancing science education with learning management systems in Oyo township was beclouded by their gender, age, school of affiliations, years of lecturing experience and their present academic status.

Recommendations

From the findings of the study, the following are therefore recommended:

(i) The Colleges of Education management team should organize seminar, symposium, workshops, and conferences on effective learning management systems to enhance prompt awareness of massive open educational software and LMSs to the lecturers so as to intimate them with the vast opportunities to change their perspective and utilize this educational-technological software;

(ii) Lecturers should change their perspectives about utilizing novel and emerging technologies in order to enable, enhance, enrich and empower their instructional effectiveness in Science education and all others instructional processes;

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