

Modelling the Predictors of LIS Students' Response to the Pedagogy of Practical Courses on DSLMS in Delta State Polytechnic Ogwashi-Uku, Delta State, Nigeria

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Abstract

Purpose: The purpose of this study was to find out how students respond to the pedagogy of practical courses on Delta State Learning Management System (DSLMS) as well as the predictors of students' response to practical courses on DSLMS in Delta State Polytechnic, Ogwashi-Uku (DSPG).

Design/Methodology/Approach: A hypothesized research model was designed to help establish the predictors of students' response to practical courses on DSLMS. Survey design was employed for this study. All the students in the department of Library and Information science, that 131 students, in DSPG were used to carry out this study. The questionnaire was the only instrument used for data collection. Descriptive and inferential statistics were used to analyze the data collected.

Findings: The study revealed that students respond positively to practical course pedagogy on DSLMS due to predictors such as instructor attitudes, quality of course content, and learners' perspectives.

Originality/Value: This study is novel and has contributed new knowledge in the aspect of establishing the predictors of students' response to pedagogical processes of practical courses on online learning system. Students' response to the pedagogy of practical courses on DSLMS is a good indication that students construct knowledge from new learning experiences as postulated by the constructivist theory.

Keywords: DSLMS, Response, ICTs, practical courses, predictors, pedagogy, pandemic, online learning.

Introduction

Teaching and learning practical skills in a new economy brought about by the new coronavirus pandemic has become necessary. Teaching and Learning practical courses is a complex yet exciting process. With the lockdown resulting from the new coronavirus pandemic, using ICTs (online learning) became an option for teaching and learning in higher learning institutions. This might affect students' responses to the pedagogy of practical courses because of such courses' peculiarity.

Pedagogy is a contested term. It is the discipline that deals with the theory and practice of teaching. Hinchliffe (2000) defined pedagogy as learning oriented towards social goals while

Watkins and Mortimore (2009) described pedagogy as any conscious activity designed to enhance learning in another. According to Bernstein (2000), pedagogy is a supported cycle whereby somebody(s) procures new structures or creates existing types of lead, information, practice and models from somebody(s) or something considered to be a suitable provider and evaluator.

ICTs are vital components of teaching and learning in the 21st era. The expanding use of ICTs in teaching and learning has improved teaching methods from traditional to the most flexible methods (Sun & Chen, 2016; Onyema & Deborah, 2019). ICTs impacts virtual learning, distance learning, versatile Learning, mobile education, and Artificial Intelligence (AI). Every

part of education is adopting ICTs. Students and instruction partners are challenged with the change to web based learning. The use of advancements in instruction builds the openness to learning assets, for example, online courses and numerous different projects to address the issue for distance learning. The use of innovations in teaching builds the availability to learning assets, for example, online courses and numerous different projects to address the issue for distance learning (Onyema, 2019). Nguyen (2015) has characterized web based learning as a wide scope of educational programs and training using the internet to facilitate instruction and provide materials and interactions between teachers and students or among the group of students.

Generally, teaching and learning are among the main components in pedagogy and educational planning. Regardless of the significance of effective teaching practices, the results are a long way from ideal (Bidabadi, Isfahani & Khalili, 2016). Unfortunately, rapid changes in the modern world, especially during and beyond the new coronavirus pandemic (COVID-19), have caused the Higher Education System to face many challenges. Teaching and learning practical courses online may also be a significant challenge during and beyond the COVID-19 pandemic. As a result, in order to properly train more keen, thoughtful students in library and information science, technical and practical courses like as cataloging and categorization must be taught. This is because the teaching of practical courses places particular demands on teachers and learners. For instance, the capacity to catalogue and classify information resources 'requires a combination of theoretical understanding, procedural knowledge and mastery of a range of practical skills' (Kilburn, Nind & Wiles, 2015). With effective pedagogy, students should develop an advanced understanding of practical courses, including cataloguing and classification, bibliography, information and communication technologies, research methods and others.

In higher institutions of learning, especially polytechnic, practical courses' pedagogy has been hampered by some factors. One well-known

challenge is the nature of the curriculum. Explaining this, Benson and Blackman (2003) wrote that the challenge is one of making the practical courses' curriculum enjoyable to students. Concerning shifting from a teacher-centered to a student-centered approach to teaching, the pedagogical challenge is one of moving away from a standard didactic approach of transferring technical information about research methods to students to the creation of an interactive environment in which students can master that technical information through processes of communication, experience, reflection, and collective analysis. The main pedagogical objective is shifting toward a more student-centered approach is to enhance students' experiential understanding of the complexities and creativity of library and information science practical courses in today's environments.

Again, with the new coronavirus pandemic, the nation's lockdown, and the reopening, higher institutions like Delta State Polytechnic introduced an online learning management system to curb the menace caused by the pandemic. Meanwhile, according to Osman, Wahid, and Zakria (2018), electronic learning is a complex learning process that incorporates ICT, instructor attitudes, and learners' perspectives. These may be responsible for students' responses to the pedagogy of online practical courses like online learning systems. Unfortunately, studies investigating students' responses and the predictors of such response to the pedagogical processes involved in teaching practical courses on electronic learning platforms are still lacking. Therefore, this study models the predictors of LIS students' response to the pedagogy of practical courses on DSLMS in DSPG.

DSPG and Level of ICTs adoption

DSPG is one of the polytechnics in Delta State situated in Ogwashi-Uku Delta State, Nigeria. National Diplomas and Higher National Diplomas are available at the polytechnic for students interested in studying courses in Arts and Designs, Applied Sciences, Engineering and others. The institution has a website, a student management online system and an online

management learning system called (DSLMS). During the COVID-19 pandemic, DSLMS was used for teaching students online, thereby breaking all the barriers to pedagogical processes brought by the pandemic. It is therefore not surprising that Delta State Polytechnic is ranked among the top three (3) higher institutions of learning in the state, eighth (8th) among Nigerian polytechnics, and 102nd among Nigerian higher institutions of learning, including universities (Webmaster, 2020). However, Anyria and Omodafe (2020) opined that DSPG need to improve their web presence for effective marketing and global ranking.

Statement of the problem

The pedagogy of practical courses in all fields of knowledge is crucial for capacity building and educational development. Nevertheless, the pedagogies involved remain under-researched, and the pedagogical culture of practical course techniques under-developed. More so, studies such as Mendy (2016) and Aguado (2012) have discovered that some of the pedagogical approaches used in teaching and learning online practical courses are inadequate. In this scenario, no doubt, students' response level to the pedagogy of practical courses may be limited. Another factor that may affect students' response to the pedagogy of practical courses using ICTS is students' gender. Studies have shown that gender differences exist in the way boys and girls use ICTS. However, empirical evidence is lacking on the existence of gender differences in students' response to the pedagogy of practical courses using ICT. Again, there is a possibility that other predictors may be responsible for students' responses to the pedagogy of online practical courses. However, these predictors are yet to be empirically determined. This study would, therefore, bridge this gap. Hence, this study seeks to model the predictors of LIS students' response to the pedagogy of practical courses on DSLMS in DSPG.

Objectives of the study

The following are the objectives of this study:

1. To find out how students respond to the pedagogy of practical courses on DSLMS in DSPG.
2. To determine the predictors of students' response to practical courses on DSLMS in DSPG.

Research Hypotheses

Ho1. Gender of students is not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG, Delta State.

Ho2. Learner's perspective will not be directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG.

Ho3. Instructor attitudes are not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG

Ho4. Content of course quality is not directly related students' response to the pedagogy of practical courses on DSLMS in DSPG

Literature Review

The success of pedagogical processes using ICTs depends on digital skills, educational technologies, and good internet networks in the learning environment (Bidabadi, Isfahani & Khalili, 2016). It also depends on other factors such as gender, learners' perspectives, instructors' attitude, etc. There are many platforms or tools used for learning using ICTs. Some of these technologies are Zoom, WhatsApp, Skype, YouTube, Google classroom and in some schools, customized learning management systems. The application of these technologies in education is likely to influence students' responses and access to learning and teaching materials through the internet. For instance, the internet has made instructing and learning accessible, and instructors and researchers are getting more interested in web-based learning as a means of increasing the accessibility of learning resources and enhancing students' learning, particularly in Higher Education (Page, 2010; Horn & Staker, 2011).

There are primary factors that influence online teaching and learning. These factors include meeting the need of students for the flexible program, shortage of educators, and the need for increasing student enrollment (Sun & Chen, 2016). In another way, war, economic crisis, and the outbreak of diseases can also be considered as catalyst for expanding online education in higher institutions of learning worldwide (Paschal & Mkulu, 2020). For example, the new coronavirus pandemic, which required non-pharmaceutical measures such as social distancing, for its prevention, prompted many higher institutions to resort to online learning.

Numerous countries worldwide, including those in Africa with documented instances such as Tanzania, Kenya, South Africa, and Uganda, have begun to take action and feasible measures to limit the few cases, including halting educational institutions and isolating infected individuals. Since then, millions of African students worldwide have shifted their education away from the face-to-face classroom and toward online learning (Avert, 2020). At this stage, the practice of educating and learning has entered the household. To enable students continue their education, online method of learning was adopted, and a large number of students began learning via the web and computerized instruments. For instance, during COVID-19, Chinese colleges were set to launch 24,000 online projects selected by the instruction service. (Ministry of Education of the People's Republic of China, 2020 cited by Paschal & Mkulu, 2020).

However, specific challenges affect online practical courses' pedagogy during and beyond the COVID-19 pandemic in schools. For instance, Raja (2012) took a gander at the difficulties confronting students in executing e-learning in Hebron Palestine. The investigation comprised of 175 students who were studying E-learning strategies and online examinations. The outcomes showed that the low level of English language of learners, shortage of computers in the schools were the challenges students faced. In Nigeria, Nnajofofor and Achukwu (2012) examined the critical challenges and implementation of E-Learning. Their study found

that constant technology change can have a profound effect on education. What other factors predict students' response to pedagogical processes on online learning systems?

Reviews of literature suggest a disjointed and under-developed discourse around the pedagogy of practical course learning. A precise survey by Wagner, Garner and Kawulich (2011) recognized an absence of 'academic culture' in practical courses instructing, inferring that there is little direction accessible to educators. The authors characterize this deficiency as an absence of discussion, cross-reference inside the writing, exchange across disciplinary settings, and considerable observational exploration. Earley (2014) noticed a scarcity of pedagogical research and pedagogic culture in practical course teaching across disciplinary boundaries. Earley observed that there is a dependence on companions, experimentation, and methodological expertise, as opposed to academic information informed by theory or research.

Theoretical Framework

Constructivist theory

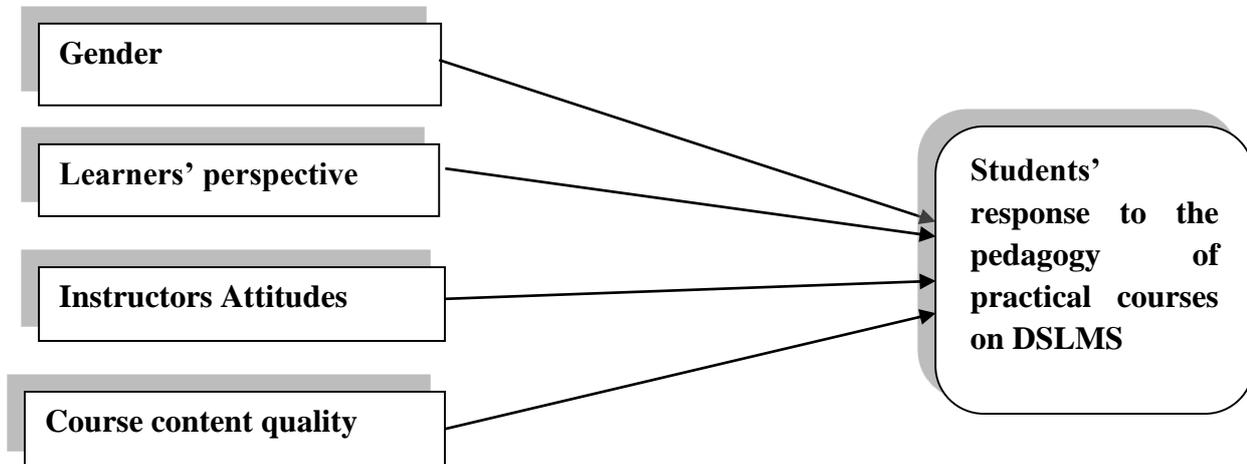
The constructivist theory was postulated by Jerome Bruner in 1966. To Bruner, learning is an active and continuous process whereby learners form new knowledge based on present and past ideas. This means that "people actively construct or make their own knowledge based on the experiences of the learner" (Elliott Kratochwill, Littlefield Cook & Travers, 2000, p.256). Constructivist learning theory supports an assortment of student-focused teaching strategies and procedures which stand out from conventional schooling, whereby information is just latently communicated by instructors to students.

Honebein (1996) in McLeod (2019) summed up the seven instructive objectives of constructivist learning conditions:

- 1) To furnish insight with the information development measure (students decide how they will learn).

2) To give insight in and thankfulness to numerous points of view (assessment of alternative arrangements).

Conceptual Model



Hypothesized model for students' response to the pedagogy of practical courses on DSLMS

- 3) To embed learning in practical and realistic settings (real assignments).
- 4) To empower proprietorship and a voice in the learning cycle (student focused learning).
- 5) To insert learning in social experience (cooperation).
- 6) To energize the utilization of various methods of representation (video, sound content, and so on)
- 7) To encourage awareness of the knowledge construction process (reflection, metacognition).

Application of the theory to the study

The primary responsibility for taking a practical course using ICT during and beyond COVID-19 is to help students become active participants in their learning. From this perspective, a lecturer in his or her use of ICT like online learning platforms acts as a facilitator of learning rather

than an instructor. Invariably, from the constructivism theory perspective, instructor (lecturer) and learner (student) while using ICT for online learning should engage in constructive dialog. While the instructor (lecturer) has the responsibility of translating information to be

learned into a form that enhances students understanding, students should be able to transform given information, and construct new hypothesis based on their cognitive structure.

Again, students by the constructivist theory are expected to construct knowledge from this relatively new learning experience. This means that students' will get a handful information when students effectively participate in online learning. Online learning students would build their understanding and knowledge of their environment. As a rule, students are dynamic makers of their insight and are expected to respond positively to online practical courses' pedagogy during and beyond the COVID-19 pandemic.

Methodology

This study is quantitative and employs a survey research design. The population of the study consists of 131 ND1 and ND2 students in the department of Library and Information Science (LIS), DSPG. The fact that the department only run Ordinary National Diploma (OND) programs

informs this choice of respondents and population. Total enumeration technique was used to take complete count of the population hence no inclusion and or exclusion criteria were required. Data was collected using the questionnaire. The instrument consisted of relevant socio-demographic data (i.e., gender, age and level of study), information on students perception on online practical courses' pedagogy during and beyond the COVID-19 pandemic, varying learners' perspectives, lecturer/instructors' attitudes, and course quality content. Through the administration of 25 copies of the questionnaire to students of the University of Benin (UNIBEN), the questionnaire was pretested and a Cronbach Alpha reliability coefficient of 0.76 was obtained. As a result, the instrument can be said to internally consistent. Out of the 131copies of the questionnaires distributed, 115 copies, representing 87.8% return rate. This form the basis for the analysis using descriptive statistical tools like frequency, simple percentages, means and standard deviations.

Results

Table 1: Socio-demographic variables of respondents (n=115)

Variables	Frequency	Percent
Gender	Male	36
	Female	79
Age in years	18-20 years	55
	21-30 years	36
	31 years and above	24
Level of study	ND 1	81
	ND 2	34
	Total	115

Table 1 clearly shows a preponderance of female students than male students in the Department of Library and Information Science in DSPG. The supporting data for the initial assertion was that of the 115 respondents who participated in this study, 68.7% were females, while 31.3% were

males. This shows that more females are pursuing a career in librarianship than their male counterparts in DSPG. Again, as indicated in Table 1, there were younger students in the growing Department, as most respondents (70.4%) were within the age range of 18-20 years. By implication, therefore, it can be said students in LIS, DSPG are more millennia. Finally, data in table 1 also showed a preponderance of ND1 students (70.4%) over ND2 students (29.6%). This should be because there are more students in ND1 than in ND2 in the growing Department.

Students' response to the pedagogy of practical courses on DSLMS in DSPG

The researchers sought to determine the students' view on their response to practical courses' pedagogy using multiple-choice assessments. Findings are presented therein.

Table 2: How students respond to the pedagogy of online practical courses during and beyond COVID-19 pandemic in DSPG (n=115)

Variables	Frequency	Percent	Mean	STD
You understand the practical courses taught using DSMLS	SD	1	.9	3.01*
	D	21	18.3	
	A	69	60.0	
	SA	24	20.9	
Are there times you asked your lecturer/instructor questions or answered questions posed by the instructor during practical classes using DSMLS	Not sure	18	15.7	2.40**
	No	33	28.7	
	Yes	64	55.7	

*=3.00; **=2.50; SD=Strongly Disagree; D=Disagree; A=Agree; SA=Strongly Agree; STD=Standard Deviation

be following teachings on the online learning platform as expected.

Data in table 2 showed that most students claim to understand the practical courses taught using DSMLS. The supporting data for the foregoing assertion was that, of the 115 respondents who participated in this study, 69 (60.0%) respondents agreed that they understood the practical courses taught using DSMLS, while 24 respondents (20.9%) strongly agreed.

Predictors of students' response to the pedagogy of practical courses on DSLMS in DSPG

Ho1. Gender of students is not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG

Table 3: Independent sample test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
*	.576	.449	-.577	113	.565	-.166	.287	-.734	.403
**									
***			-.574	66.904	.568	-.166	.289	-.742	.410

*On a scale of 0-5, with 5 being the highest, rate your response to the practical course taught using DSMLS

** Equal variances assumed

*** Equal variances not assumed

The item had a mean score of 3.01 and a standard deviation of .656.

Furthermore, more than half of the 115 respondents (55.7%) answered in the affirmative that there were times they asked their lecturer/instructor questions or answered questions posed by the instructor during practical classes using DSMLS pandemic. Considering the mean value of 2.40 which is less than the 2.50 threshold, it can be implied that students may not

An independent-samples t-test was conducted to compare males with females' responses to the pedagogy of online practical courses. There was no significant difference in the response levels of male students (M=3.42, SD= 1.442) and those of

females (M=3.54, SD=1.420); $t(113)=-.577$, $p = .565$. Therefore, the null hypothesis, is accepted. By implication, gender of students is not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG

Ho2 Learner's perspective will not be directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG

Table 4: Friedman test on Leaners perspective and students' response to the pedagogy of

N	115
Chi-Square	13.528
df	4
Asymp. Sig.	.009

a. Friedman Test

online practical courses during and beyond COVID-19 pandemic

Friedman test was used to test the effect of learners' perspective on students' response to practical courses' pedagogy during and beyond COVID-19 pandemic. The test met all the assumptions for Friedman test on SPSS. There was a statistically significant difference in students' response to the pedagogy of online

find additional information not provided by your lecturers, the attitude of always completing assignments and students ability to brainstorm different possible solutions to a given problem ($\chi^2(4) = 13.528$, $p = .009$). Therefore, the null hypothesis is rejected.

Ho3. Instructor attitudes are not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG

Table 5: Ordinal regression on Instructors attitude and students' response to the

		Sum of Squares	df	Mean Square	F	Sig.
Your lecturer/ instructors taking practical courses have good communication skills.	Between Groups	10.601	3	3.534	13.983	.000
	Within Groups	27.039	107	.253		
	Total	37.640	110			
Your lecturer/ instructors taking practical courses have Listening Skills.	Between Groups	14.758	3	4.919	13.792	.000
	Within Groups	39.590	111	.357		
	Total	54.348	114			
Your lecturer/ instructors taking practical courses have a Friendly Attitude.	Between Groups	12.901	3	4.300	8.882	.000
	Within Groups	53.742	111	.484		
	Total	66.643	114			
You are impressed with the lecturer/ instructors taking practical courses teaching skills on DSMLS	Between Groups	9.617	3	3.206	19.050	.000
	Within Groups	18.679	111	.168		
	Total	28.296	114			
Your lecturer/ instructors taking practical courses have substantial Work Ethic.	Between Groups	12.259	3	4.086	8.571	.000
	Within Groups	52.923	111	.477		
	Total	65.183	114			

practical courses depending on learners perspective such as how they can make and justify assumptions when not enough information is provided during lectures, ability to

pedagogy of online practical courses

There was a statistically significant difference in students' response to the pedagogy of online

practical courses pandemic based on instructors' attitudes as determined by one-way ANOVA. All the p values are significant at 0.05. The null hypothesis is, therefore, rejected.

Ho4. Content of course quality is not directly related to students' response to the pedagogy of practical courses on DSLMS in DSPG.

Table 6: Ordinal regression on quality of course content and students' response to the pedagogy of online practical courses

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	46.656			
General	20.578 ^b	26.078	12	.010

Ordinal logistic regression was used to predict students' response to practical courses' pedagogy (an ordinal dependent variable) given the course content's quality (independent variables). The null hypothesis was rejected since a significant relationship was found between students' response to the pedagogy of online practical courses during and beyond the COVID-19 pandemic and the quality of the course content ($\chi^2(12) = 26.078, p = .010$). By implication, students' understanding of practical courses taught using DSMLS is enhanced by course content quality.

Discussions

With the new coronavirus, a significant shift from purely traditional learning to virtual learning became eminent. Some students were likely to enjoy getting to learn at their own pace, setting their schedule, and being free from "the school's stressful environment." Other students may struggle to understand assignments and practical courses taught because of some of the inherent limitations of using ICTS for learning in a country like Nigeria, such as unstable internet network problems, distractions, and lack of hardware devices for online learning. Therefore, it became pertinent to find out the extent DSPG students understand the practical courses taught on the school's online learning system called DSMLS. Findings revealed that students understood the practical courses taught using

DSMLS and asked and answered questions during lectures. These show that students respond positively to online practical courses' pedagogy in DSPG. This finding corroborates the constructivist theory's tenets, which holds that students are expected to construct knowledge from the new learning experience. Also, this findings further confirms the findings of Lao and Gonzales (2005). Lao and Gonzales found that students see online learning as a convenient and flexible learning opportunity that allows them learn at their own pace.

On the predictors of students' response to the pedagogy of online practical courses during and beyond COVID-19 pandemic, gender of students was found not to be directly related to students' response to the pedagogy of online practical courses during and beyond COVID-19 pandemic in DSPG. This standpoint is somewhat in agreement with Moore and Yin (2009) position on gender differences in information literacy skills learning. They reported that gender did not influence the learning and development of information skills of students.

Again, students' response to the pedagogy of online practical courses is dependent on learners' perspectives. Students who can make and justify assumptions when not enough information is provided can find additional information not provided by lecturers, those that always complete assignments and students with the ability to brainstorm different possible solutions to a given problem were more likely to positively respond to the pedagogy of online practical courses during and beyond COVID-19 pandemic in DSPG. This findings provides explanations for Al Mamun, Lawrie & Wright (2019) findings. They discovered that students' online learning perspectives differ as some students may lack even the most basic computer abilities required for learning in a computer-mediated setting. Nonetheless, Al Mamun, Lawrie & Wright study did not find any instances of poor participation

with activities as a result of low technical ability. While these pupils may be few in today's digital era, they may encounter this hindrance to learning in the setting of the learning environment used in this study. Additionally, as the study noted, some students may have formed a strict system for measuring their own comprehension of a subject and hence may not recognize or value feedback offered via the online interface (Dedic, Rosenfield, Cooper & Fuchs, 2001).

Furthermore, this study's findings also revealed that instructor attitudes are directly related to students' response to online practical courses' pedagogy during and beyond the COVID-19 pandemic. By implication, students' understanding of online practical courses was based on their lecturer/ instructors' good communication skills, listening skills, friendly attitude, teaching skills on DSMLS, and work ethic. Another predictor of students' response to the pedagogy of online practical courses found in this study was the quality of course content. By implication, students' understanding of practical courses taught using DSMLS is enhanced by course content quality. This is in agreement with Smidt, Li, Bunk, Kochem, and McAndrew (2017) findings as it was revealed that the quality of online courses is said to influence students understanding of the course. They also found that both students and lecturers see a quality online course as one that reinvents the face-to-face experience of classroom instruction so that students get the full benefit of a classroom community. It is additionally one that keeps up the meticulousness of classroom study hall guidance and cooperation while making those things all the more broadly accessible.

Conclusion and Recommendations

This study has established the predictors of Library and information science students' response to the pedagogy of practical courses on DSLMS in DSPG, Delta state. Students respond positively to practical course pedagogy using ICTs due to several predictors such as instructor attitudes, quality of course content, and learners' perspectives. Indeed, students' response to the pedagogy of practical courses on DSLMS is a

good indication that students construct knowledge from new learning experiences as postulated by the constructivist theory. However, gender is not a predictor of students' response, as no difference was found between male and female response rates to pedagogical processes for online practical courses. Therefore, lecturers and students have a significant role in ensuring that pedagogical processes are properly explored for improved online learning both during and beyond the pandemics. Lecturers must continue and even improve their teaching skills, listening skills, communication skills within the confines of work ethics. Also, since learners' perspective is a predictor of students' response to pedagogy, students must stay organized, ask questions, pay abrupt attention to instructors and build their ICTs skills. Nonetheless, more research may be necessary to investigate the best pedagogical processes for lecturers and students using ICTs now and beyond.

References

- Al Mamun, M. A., Lawrie, G., & Wright, T. (2019). Instructional design of scaffolded online learning modules for self-directed and inquiry-based learning environments. *Computers & Education*, 103695. doi:10.1016/j.compedu.2019.103695
- Avert. (2020, August 25). *HIV and AIDS in East and Southern Africa regional overview*. Retrieved June 1, 2021, from <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/overview>
- Benson, A. & Blackman, D. (2003). Can research methods ever be interesting? *Active Learning in Higher Education*, 4 (1), 39-55
- Bernstein, B. (2000). *Pedagogy, symbolic control, and identity*. Lanham, MD: Rowman and Littlefield
- Bidabadi, N. S, Isfahani, A. N & Khalili, R. (2016). Effective teaching methods in higher education: requirements and

- barriers. *Journal of Advanced Medical Education*, 4(4), 170–178.
- Dedic, H., Rosenfield, S., Cooper, M., & Fuchs, M. (2001). Do I Really Hafta? WebCal, a look at the use of livemath software in web-based materials that provide interactive engagement in a collaborative learning environment for differential calculus. *Educational Research and Evaluation*, 7(2–3), 285–312.
<https://doi.org/10.1076/edre.7.2.285.3862>
- Earley, M. (2013). A synthesis of the literature on research methods education. *Teaching in Higher Education*. 19 (3), 242-253. DOI: 10.1080/13562517.2013.860105.
- Elliott, S. N., Kratochwill, T. R., Littlefield, Cook, J. & Travers, J. (2000). *Educational psychology: Effective teaching, effective learning* (3rd ed.). Boston, MA: McGraw-Hill College.
- Hinchliffe, G. (2000). Education or pedagogy? *Wiley Online*. Retrieved from onlinelibrary.wiley.com › DOI › pdf
- Horn, M., & Staker, H. (2011). The rise of K-12 blended learning. *Innosight Institute*. Retrieved from <http://www.innosightinstitute.org/innosight/wp-content/uploads/2011/01/The-Rise-of-K-12-Blended-Learning>
- Anyria, I & Omodafe, U. P. (2020). Improving Delta State Polytechnic Ogwashi-Uku DSPG Website for Effective Marketing Cum Global Ranking. *Asian Journal of Advanced Research and Reports* 14(4):74-84. DOI: 10.9734/AJARR/2020/v14i430344
- Kilburn, D., Nind, M., & Wiles, R. (2014) Learning as researchers and teachers: the development of a pedagogical culture for social science research methods? *British Journal of Educational Studies*, 62 (2), 191-207
- McLeod, S. (2019). Constructivism as a theory for teaching and learning. *Simply psychology*. Retrieved from <https://www.simplypsychology.org/constructivism.html>
- Mendy, J. P (June 2016). Teaching and learning research methods – towards developing a deeper appreciation of their assumptions. *A paper presented at the 15th European Conference on Research Methodology for Business and Management Studies*, Kingston University, Lincoln. Retrieved from <http://eprints.lincoln.ac.uk/22202/>
- Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *Journal of Online Learning and Teaching*, 11(2),1-13.
- Onyemo, E. M. (2019). Integration of emerging technologies in teaching and learning process in Nigeria: The challenges. *Central Asian Journal of Mathematical Theory and Computer Sciences*,1, 35-39.
- Onyemo, E. M., & Deborah, E. C. (2019). Potential of mobile technologies in enhancing the Effectiveness of inquiry-based learning. *International Journal of Education IJE*, 2, 1-25
- Osman, M. A., Wahid, A. K., & Zakria, A. R. (2018). Assessment of factors affecting e-learning: a preliminary investigation. An unpublished conference paper.
- Page, L. (2010). Blended teaching and learning. *School Administrators*, 67(4), 16-21.
- Paschal, M. J. & Mkulu, D. M. (2020). Online classes during COVID-19 pandemic in higher learning institutions in Africa. *Global Research in Higher Education*,3(3), 1-21.
- Smidt, Li, Bunk, R.J., Kochem, T., & McAndrew, A. (2017). The meaning of quality in an online course to

administrators, faculty, and students. *Journal of Interactive Learning Research*, 28(1), 65-86.

Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education Research*, 15, 157-190. Retrieved from <https://doi.org/10.28945/3502>

Wagner, C., Garner, M., & Kawulich, B. (2011). The state of the art of teaching research methods in the social sciences: towards a pedagogical culture. *Studies in Higher Education*, 36 (1), 75-88. DOI: 10.1080/03075070903452594.

Watkins C, & Mortimore, P. (2009). *Pedagogy: What do we know? In Mortimore P (ed.) Understanding pedagogy and its impact on learning*. London: Paul Chapman Publishing