



PEDAGOGICAL SKILLS NEEDED FOR EFFECTIVE ONLINE TEACHING AND LEARNING IN POLYTECHNICS

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Abstract

Online teaching and learning has come to stay as a result of advances in technology in the 21st century. This study examined pedagogical skills needed for effective online teaching and learning in polytechnics. One research question were raised and one hypothesis was tested in the study. The study used a descriptive survey design. The population of the study comprised all polytechnics lecturers in the department of Office Technology and Management in North Central, Nigeria. Three hundred and twenty three copies of the questionnaire were administered. Only two hundred and seventy were retrieved and used for the study. The instrument for data collection was a structured questionnaire tagged Pedagogical Skills needed for effective Online Teaching and Learning Questionnaire (PSEOTLQ) designed by the researcher with 4 points rating scale. The instruments went through face and content validation by three experts. The reliability of the instrument was ensured using the Split-half method and the result yielded a reliability coefficient of 0.87. Mean and standard deviation were used to analyze the data collected to answer the research question. The hypothesis was tested using independent sample t-test at 0.05 level of significance. The study found among others that pedagogical skills are highly needed for effective online teaching and learning. Based on the findings of the study, it was recommended that polytechnic management should provide training for their lecturers, this may be inform of seminars, workshops and conferences. Also lecturers should also find a means of developing themselves without necessarily waiting for the polytechnic managements for acquisition of pedagogical skills.

Keywords: Pedagogical skill, Online, Teaching and Learning

Introduction

Technology innovation has influenced all facets of human endeavour including education. The Internet has moved education beyond the four walls of classrooms (Ezeabii, Ile, and Ezugwu, 2019). Technology has launched the world into a knowledge-based economy in which ideas and technological principles are used for better output (Mbah, 2016). Thus, advancement in technology, according to Muhammed, Sue, and Munnaza (2015) has compelled teachers and educators to utilize its benefits for the delivery of instruction and hence promote knowledge through online learning. This means that, the world is changing more rapidly in the 21st century when it comes to the dissemination of information and its uses. This movement is caused by the advancement in technology which also affects the education sector.



The comprehensive integration of information technology into teaching and learning in the 21st century has begun to revolutionize the education system. Mostly, this change is due to online/distance education. Online education has now become a major part of the higher education system (McFarlane, 2011) and has changed the way we teach higher institution students now and in the future. The online teacher in higher education also needs a change in skills and focus, including using a student-centered approach (Fish & Wickersham, 2009). The rapid growth of online programs raises many new educational, psychological and social challenges.

Improving the effectiveness of online education and understanding how students learn and how well teachers teach in an online environment requires a holistic view based on sound, continuous teaching research and pedagogy. Pedagogy refers to the interaction between teachers, students, the learning environment, and learning activities. This broad term includes how teachers and students relate to the teaching methods used in the classroom or online environment. Teach online. CA (2012) noted that pedagogy concerns about how technology changes the way we teach and most importantly how students learn. What is clear is that the major changes in the way high school students are taught are caused by online learning and new technologies that increase flexibility, and access to post-secondary education. Abdous (2011), argue that pedagogy is a learning process that focuses on building new skills, which explains how knowledge is assimilated, produced and used in a way that can create new things. Mamman and Oyinloye (2016) explained that to improve the quality of teaching and learning in the classroom, non-traditional methods such as active learning, cooperative, collaborative, and problem-based learning can be used.

Pedagogy informs teaching strategies, teacher actions, and teacher choices and decisions based on learning theories, students' understanding and their needs, and the backgrounds and interests of individual students. Pedagogy is the tools, activities, strategies, and decisions of a learning environment that are highly interactive, inclusive, collaborative, and inspiring. Pedagogy is about teaching skills and techniques used by teachers to facilitate learning. Enyekit, Ubulom, and Enyekit, (2015) have revealed that pedagogical is in-depth knowledge about the processes and methods of teaching and learning and how it integrates (among other things) general educational goals, values and objectives. This is a general form of knowledge that is involved in all aspects of student learning, classroom management, curriculum development and implementation, and student assessment. Includes information on strategies or methods to be used in class; the nature of the intended audience; and strategies for assessing students' comprehension. Teachers with in-depth pedagogical experience understand how students build knowledge and acquire skills; develop mental habits and a good will to learn. In a related view, Enyekit and Enyekit (2014), have also agreed that such pedagogical knowledge needs to understand the concepts of learning, social, and developmental theories of learning and how it works for the students in their class.

Mamman and TswanyaSaba (2021) noted that online instructors should understand the fundamentals of online teaching and pedagogy. They must demonstrate this understanding by applying a large number of principles and strategies. These principles and strategies include learning theories, such as learning styles, the adult learning theory, the learner-centred approach, and collaborative learning; designing and implementation appropriate instructional strategies, as well as classroom assessment and student engagement techniques; organizing and facilitating students' participation and providing guidance and support as needed; using criterion-based assessment to evaluate individual and group performance; motivating students and showing enthusiasm and interest; encouraging knowledge construction based upon learners' prior knowledge and life experience; fostering learners' self-assessment and reflection; and promoting group interaction, collaboration, and teamwork (Abdous, 2011). Pedagogical skills are about the teachers' competencies to determine what, where, when, how and the method that will best adopted to enhance effective teaching that will result in better results. According to Jeral and Elizabeth (2015), online pedagogical skills include well developed and careful design of learning activities that promote interaction and prompt feedback in online environment. Therefore, online educators always establish and project their pedagogical



presence into the online learning environment. One of the pedagogical roles of online educators include pedagogical knowledge, facilitating active learning, designing instruction, coordinating social interaction, managing the course, and troubleshooting technical issues (Mamman and TswanyaSaba 2021) .

Pedagogical approaches are often used in many forms ranging from teacher-centered to learner-centered teaching methods. While the two approaches may seem contradictory, they are often connected to achieving educational goals - for example, a teacher-centered approach can help introduce a new theme, and a student-centered approach may be needed to allow students to explore these ideas and develop deeper insights.

Instructors are anticipated to be resourceful and able to provide education to meet the desires of learners. To be able to achieve this, teachers are expected to fashion out new methods and strategies to deliver knowledge in online learning. Classic pedagogy has helped many generations of teachers and students with bricks and mortar education well, however, it cannot satisfy teachers and students online, as "rapid changes in knowledge and technology drive the need for new ways to disseminate and integrate new information in the work place and work practices and new adult learning methods" (Haythornthwaite & Andrews, 2011). Therefore, the need for an innovative pedagogy for online education is necessary. Based on the above assertion the researcher was of the view that for successful online teaching and learning, teachers cannot do without pedagogical skills. Therefore the study intends to look at pedagogical skills needed for effective online teaching and learning in polytechnics.

Statement of the Problem

Online teaching and learning demands that teachers possess pedagogical skills that will enable them to effectively teach in online environment. As important as this pedagogical skill is in online education, the researcher's observed that many lecturers did not possess it. As a result, Polytechnic lecturers in this era of information revolution made possible by Information and Communication Technology (ICT) are still relying on the massively adopted orthodox method of talk and chalk instructional delivery without realizing that the online learning and computer is fast becoming the chalkboard of tomorrow (Ima-Obong & Imoh-Obong, 2016). This reveals that students in polytechnics continue to rely solely on their teachers and the available texts, and the instructional strategies continue to be teacher-centered, while students remain passive learners. Mamman and TswanyaSaba (2021) noted that despite the fact that many educators see the importance of online education at this era of 21st century many still lack the pedagogical skills, knowledge and experiences to teach online. Hence, the study centers on the pedagogical skills needed for effective online teaching and learning in polytechnics.

Research Questions

In line with the study, one research question was raised to guide the study:

1. What are the pedagogical skills needed for effective online teaching and learning in Polytechnics?

Research Hypothesis

One null hypothesis was formulated and tested at 0.05 level of significance.

1. There is no significant difference between the mean ratings of male and female lecturers respondents on the pedagogical skills needed for effective online teaching and learning OTM courses in Polytechnics.

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Methodology

The study adopted descriptive survey research design for the study. The study sought the opinion of the respondents on pedagogical skills needed for effective online teaching and learning in polytechnics. The population of the study comprised all lecturers in North Central, Nigeria Polytechnics in the department of Office Technology and Management. A sample population of 323 lecturers was selected for the study. The lecturers were selected because the researcher believed that they are in a better position to assess the pedagogical skills needed for effective online teaching and learning. The instrument for data collection was a structured questionnaire designed by the researcher which is tagged "Pedagogical Skills needed for effective Online Teaching and Learning Questionnaire (PSEOTLQ)". The questionnaire was made up of 22 items. The items were placed on 4-point rating scale of Strongly Agreed (3.50-4.00), agreed (2.50-3.49), Disagreed (1.50-2.49), and Strongly Disagreed (0.0-1.49). The instrument was face validated by three experts. Split-half method was used where the instrument was divided into two halves of odd and even numbers. The reliability of one half (odd) was determined using spearman Rank Correlation Coefficient. The reliability coefficient of the whole instrument was determined using Spearman Brown Prophecy formula. The reliability coefficient calculated was 0.87. The researcher, with the aid of research assistants, administer 323 copies of the questionnaire. Out of these 270 copies of the questionnaires administered were collected and used. Mean and standard deviation were used to analyze the data collected to answer the research question. Independent t-test was used to test the hypothesis.

Results

Research Question One:What are the pedagogical skills needed for effective online teaching and learning in Polytechnics?

Table 1:Mean and standard deviation of responses on pedagogical skills needed for effective online teaching and learning in Polytechnics

S/N	ITEMS	Mean	Std	Remark
1	Time management skills.	3.77	0.59	Highly Needed
2	Ability or willingness to respond to students' needs immediately.	3.77	2.54	Highly Needed
3	Ability to provide prompt feedback on students' assignments.	3.66	0.64	Highly Needed
4	Ability to provide a solution to students' challenges.	3.69	0.64	Highly Needed
5	Ability to guide students to discover knowledge and fact.	3.67	0.71	Highly Needed
6	Subject matter expert skills.	3.42	0.76	Moderators Needed
7	Skills to monitor and follow up with the academic progress of the students.	3.55	0.70	Highly Needed
8	Ability to support learning through effective interaction.	3.63	0.64	Highly Needed
9	Establishing and sustaining an online presence.	3.51	2.52	Highly Needed
10	Ability to provide clear guidelines for interaction with students.	3.60	0.68	Highly Needed
11	Ability to encourage cooperation among students.	3.59	0.72	Highly Needed
12	Ability to motivate critical thinking discussion among students.	3.51	0.73	Highly Needed
13	Ability to encourage active learning among students.	3.58	0.73	Highly Needed
14	Ability to encourage learning anywhere and anytime.	3.59	0.70	Highly Needed
15	Ability to emphasize time on online tasks and courses that need deadlines	3.41	0.75	Moderators Needed
16	Ability to communicate high expectations.	3.48	0.75	Moderators Needed
17	Ability to incorporate and respect students' diverse views.	3.39	0.89	Moderators Needed
18	Knowledge of preparation of online teaching materials.	3.63	2.52	Highly Needed
19	Ability to manage students through learner-centered approaches.	3.49	0.74	Moderators Needed
20	Ability to encourage students' collaborative knowledge creation in interaction with the teacher and among students.	3.48	0.76	Moderators Needed
21	Ability to use multimedia and open educational resources.	3.55	0.70	Highly Needed
22	Ability to plan and design online courses.	3.48	0.76	Moderators Needed
	Weighted Mean and Std	3.57	0.96	Highly Needed

Source: Field Survey, 2021



Table 1 reveals that the following online pedagogical skills are highly needed for effective online teaching and learning in Polytechnics: time management skills (mean = 3.77), ability or willingness to respond to students' needs immediately (mean = 3.77), ability to provide prompt feedback on students' assignments (mean = 3.66), ability to provide solution to students challenges (mean = 3.69), ability to guide students' to discover knowledge and fact (mean = 3.67), skills to monitor and follow-up with academic progress of the students' (mean = 3.55), ability to support learning through effective interaction (mean = 3.63), establishing and sustaining online presence (3.51), ability to provide clear guidelines for interaction with students (3.60), ability to encourage cooperation among students (mean = 3.59), ability to motivate critical thinking discussion among students (mean = 3.51), ability to encourage active learning among students' (mean = 3.58), ability to encourage learning anywhere and anytime (mean = 3.59), knowledge of preparation of online teaching materials (mean = 3.63) and ability to use multimedia and open educational resources (mean = 3.55).

Also, Table 1 reveals that the following online pedagogical skills are moderately needed for effective online teaching and learning; subject matter expert skills (mean = 3.42), ability to emphasize time on online tasks, and courses that need deadlines (mean = 3.41), ability to communicate high expectations (mean = 3.48), ability to incorporate and respect students' diverse views (mean = 3.39), ability to manage students through learner-centered approaches (mean = 3.49), ability to encourage students' collaborative knowledge creation in interaction with the teacher and among students (mean = 3.48) and ability to plan and design online course (mean = 3.48). The table showed that all 22 items have their standard deviations from 0.59 to 2.54 which are below the fixed value of 1.96. This means that respondents' responses were not too widespread from the mean, the responses were slightly clustered to the mean. The data analyzed in Table 1 reveals that online pedagogical skills are highly needed for effective online teaching and learning in Polytechnics (mean = 3.57, SD = 0.96).

Test of Hypothesis

1. There is no significant difference between the mean ratings of male and female lecturers respondents on the pedagogical skills needed for effective online teaching and learning OTM courses in Polytechnics.

Table 2: Summary of t-test of the difference between the mean ratings of male and female lecturer's respondents on the pedagogical skills needed for effective online teaching and learning OTM courses

Group	N	Mean	SD	t-cal	Df	p-value	Decision
Male lecturers	133	3.58	0.46	0.39	268	0.138	NS
Female lecturers	137	3.56	0.58				

Source: Field survey, 2021

P>0.05



Table 2 reveals that there are 133 and 137 male and female lecturers respondents respectively. Male respondents had a higher mean ($\bar{X} = 3.58$; $SD = 0.46$) than female ($\bar{X} = 3.56$; $SD = 0.58$). Table 2 reveals that there was no significant difference between the mean responses of male and female lecturers respondents on the pedagogical skills needed for effective online teaching and learning of OTM courses ($t_{268} = 0.39$, $P=0.138$). Therefore, the hypothesis that stated that there is no significant difference between the mean rating of male and female lecturers respondents on the online pedagogical skills needed for effective online teaching and learning of OTM courses was not rejected. This indicated that male and female respondents did not differ significantly in their responses on online pedagogical skills needed for effective online teaching and learning of OTM courses. Though a slight difference can be observed with the males lecturers having a higher mean (mean = 3.58) than their females lecturers having lower (mean = 3.56), the difference was not statistically significant.

Discussion of findings

The study examined the pedagogical skills needed for effective online teaching and learning in polytechnics. The study found that time management; ability or willingness to respond to students' needs immediately; ability to provide prompt feedback on students' assignments; ability to provide a solution to students' challenges; ability to guide students to discover knowledge and fact; skills to monitor and follow up with the academic progress of the students; ability to support learning through effective interaction; establishing and sustaining an online presence; ability to encourage cooperation among students; ability to motivate critical thinking discussion among students; ability to encourage learning anywhere and anytime; knowledge of preparation of online teaching materials and ability to plan and design online courses are highly pedagogical skills needed for effective online teaching and learning. This means that for one to be an effective teacher in an online environment, pedagogical skills must be possessed. This finding supports the earlier finding of Abdous (2011) who stated that effective online instructors should understand the fundamentals of online teaching and possess pedagogical skills. It is therefore clear that pedagogical skills is essential for effective online teaching and learning.

The study also found that these pedagogical skills are moderately needed for effective online teaching and learning. These are subject matter expert skills; ability to emphasize time on online tasks and courses that need deadlines; ability to communicate high expectations; ability to incorporate and respect students' diverse views; ability to manage students through learner-centered approaches; ability to encourage students' collaborative knowledge creation in interaction with the teacher and among students and ability to plan and design online courses were moderately needed skills. These findings agreed with Teach online.CA (2012) who stated that pedagogy concerns with how technology is changing the way to teach and more importantly the way students learn. The author further noted that major changes in the way to teach post-secondary students are being triggered by online learning and the new technologies that increase flexibility in, and access to, post-secondary education. This was also in line with Abdous (2011) who stated that pedagogy is a learning approach focused on the development of innovation competencies, defining how knowledge is assimilated, produced, and used in a manner that can create innovations. That is why (Fish & Wickersham, 2009) pointed out that the online instructor in higher education needs a change in skills and focus, including using a student-centered approach.

Conclusion

Based on the findings of the study, it was concluded that pedagogical skills are highly needed for effective online teaching and learning. Pedagogical skills such as ability to manage students through learner-centered approaches, collaboration and interaction among students and lecturers, ability to encourage learning anywhere and anytime, knowledge of preparation of online teaching



materials, mastery of subject matter, ability to encourage active learning among students are essential for effective online teaching and learning. This means that for teachers to perform effectively in online environment they have to possess pedagogical skills if not teacher may find it difficult to teach online courses in the online environment.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Different training on online pedagogical skills should be provided by the polytechnic management for their lecturers. This can be informed of workshops, conferences, and seminars.
2. Lecturers should ensure that they engage themselves in self-development. This will enable them to acquire necessary pedagogical skills needed for effective online teaching and learning without waiting for polytechnic management.

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