TEAM DIGITAL NEEDS ASSESSMENT AND APPROPRIATE TOOLS GATHERING AS CORRELATES OF EFFECTIVE LESSON DELIVERY IN A POST COVID-19 ERA IN SECONDARY SCHOOLS IN DELTA STATE

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Abstract

This study investigated team digital needs assessment and appropriate tools gathering as correlates of effective lesson delivery in the post-COVID-19 era in secondary schools in Delta State. Two (2) research questions and two hypotheses were answered and tested in the study. The design for the study was correlational. The population of the study comprised all the 5,600 teachers in the 350 public senior secondary schools, with a sample of 373 teachers representing 6.7% of the population selected using the purposive sampling technique. Respondents of the study responded to 2 instruments titled Team Digital Needs Assessment and Appropriate Tools Gathering Scale' (TDNAPTGSSS) and 'Effective Lesson Delivery Scale' (ELDS) designed by the researchers after the modified 4-point Likert scale model, with a reliability index of 0.89 and 0.83, respectively obtained using Cronbach Alpha statistical formula. Pearson Product Moment Correlation Coefficient Statistics was used in answering the research questions while t-test was used in testing the hypotheses. The study establishes among others that, , team digital needs assessment and appropriate tools gathering correlates with effective lesson delivery. The study concluded that, team digital needs assessment and appropriate tools gathering, have significant implications for effective lesson delivery in public secondary schools in Delta State. It was recommended among others that, the Ministry of Education through their supervisory arrangements should continue to encourage team digital needs assessment to identify areas of needs where teachers can collaboratively work together and also the need for Government in collaboration with the Ministry of Education to make available appropriate digital tools that teachers and students need to ensure effective lesson delivery in the digital education era.

Key Words: Team Digital Needs Assessment, Appropriate Tools Gathering, Effective Lesson Delivery, COVID-19, Secondary Schools

Introduction

The encounter of the deadly Covid-19 pandemic in the educational sector practically changed the operational narratives of education in many ways and the future of teaching after COVID-19 has been complex, uncertain, and contingent on the policy decisions and professional directions of education pursuit, especially in the less developed countries of the world. This sudden change ignited a reasonable sense of integration of digital tools and technologies into educational settings that have transformed the teaching and learning process. Effective lesson delivery in the digital age requires educators to possess a well-rounded set of digital competencies that will make them fit into the new digital educational practice.

The COVID-19 pandemic accelerated the adoption of digital technologies in education, making it crucial for teachers to possess robust digital competencies. Teachers' digital competencies refer to their ability to effectively integrate digital technologies into teaching and learning processes.

This includes skills in using educational software, online collaboration tools, and digital pedagogy. Such teachers' digital competencies are vital for delivering effective education. The role of school management in supporting and managing teachers' digital competencies in the post-COVID-19 era is of paramount importance as school management plays a central role in supporting, managing, and nurturing these competencies (Fullan, 2016). Effective lesson delivery through digital means necessitates several key teachers' competencies that need proper management like digital literacy which helps teachers to be proficient in using digital devices, software, and applications, basic computer skills, file management, and effective internet usage.

In the digital age, teachers' competencies in utilizing digital tools and technologies significantly influence the quality of lesson delivery and student learning outcomes. As technology continues to shape the society, cultivating and refining digital competencies will be an ongoing journey for individuals of all ages and backgrounds (Poushter, 2016). Needs assessment is a systematic process for determining and addressing needs, or gaps, between current conditions and desired conditions or wants. It is part of planning and it can be used to clarify problems and identify appropriate solutions. Digital needs assessment teams play a crucial role in this process.

For Poushter (2016), digital needs assessment helps to identify digital skills necessary for education programmes and shows the gap between current and desired goals and how they can be maximally achieved. Team digital needs assessment refers to the systematic process of evaluating the requirements and capacities of an educational team in utilizing digital tools and technologies for effective lesson delivery. Digital needs assessment involves a systematic evaluation of the technological requirements, challenges, and goals within a school or educational institution. This assessment aims to identify areas where the team may need support or improvement in adopting and integrating digital resources into their teaching practices. It could be in the area of availability and functionality of hardware (computers, tablets, etc.) (Iordache, Marien & Baelden, 2017).

For Ahmed (2017), team digital needs assessment should address accessibility of digital tools and resources (software, learning platforms, digital literacy skills of teachers and staff, need for training in using specific educational software and tools, familiarity with and ability to implement technology integration frameworks (e.g., TPACK - Technological Pedagogical Content Knowledge), the effectiveness of communication channels among team members. Still on this, O'Reilly, (2016) postulates that, digital needs assessment is designed to create cohesion through the alignment of goals, strategies, professional development, and desired outcomes. It enables benchmarking and monitoring of implementation and impact, it relates to issues of continuous improvement activities by helping staff identify changes in the system, identify which instructional and other practices that are working, and the strategies associated with the greatest success.

Digital needs assessment teams can use surveys, interviews, and data collection tools to gather information about teachers' digital competencies. O'Reilly (2016) lists eight indicators commonly found in digital technology needs assessment survey tools in educational practice. The indicators included: self-assessed skill level, digital technology use and integration, teacher beliefs, barriers to access, professional development resources, leadership, needs and wants, and demographics.

These core indicators were used to create a digital technology needs assessment survey for pre-and in-service language teachers within a US higher education setting, which are both relevant and applicable to a wide range of educational programmes and teacher backgrounds. According to Aldunate and Nussbaum (2013) and Berggren, Fili, & Nordberg (2015), team digital needs assessment must address

specific issues and areas that concern the availability of required computers in the classroom and how they are rationally utilized, students' equal access to computers at home and their overall technology skills to use computers efficiently, teaching staff devoted time to practice their professional skills in the application of digital technology in the classroom, sufficiency or adequacy of software on classroom or laptop computers, the extent of insufficient or inadequate support on how to use technological applications in teaching, the kinds of computers and software at school and the computers and software they use at home.

The post-COVID-19 era necessitated a holistic approach to digital tools gathering for teachers' lesson delivery. Therefore, educators must embrace a diverse array of tools that cater to both synchronous and asynchronous learning, prioritize adaptive and personalized learning experiences, leverage data analytics for informed decision-making, and ensure the cybersecurity and privacy of their students (Barrett & Lally, 2018). The ongoing evolution of technology requires educators to stay informed and adaptable, fostering a resilient and dynamic educational ecosystem. The COVID-19 pandemic has significantly accelerated the integration of digital tools into education, reshaping the landscape of teaching and learning.

According to Smith (2017), interactive whiteboards (IWBs) and presentation tools have revolutionized traditional teaching methods. Tools like SMART Boards, Promethean Boards, and software such as Microsoft PowerPoint or Google Slides allow teachers to create dynamic and interactive presentations. These tools facilitate multimedia integration, and real-time collaboration, and can accommodate various learning preferences. Another online learning facility is the Learning Management System (LMS) on Moodle, a software that manages web-based learning (Sturm & Quaynor, 2020). LMS platforms like Moodle, Canvas, and Blackboard provide a centralized hub for lesson planning, content delivery, and student engagement. Teachers can upload resources, create assessments, and foster communication within a secure online environment.

The integration of Virtual Reality (VR) and Augmented Reality (AR) technologies adds a layer of immersive experience to lessons. Teachers can take students on virtual field trips, simulate complex concepts, and provide hands-on experiences. Applications such as Google Expeditions and Merge Cube offer opportunities for interactive and engaging learning. (Dalgarno, & Lee, 2010; Barrett & Lally, 2018). Some of these e-learning technologies platforms utilized for effective instructional delivery include Udemy, Skillshare, Pluralsight Skills, LinkedIn Learning, CBT Nuggets, Udacity, Cloud Academy, A Cloud Guru, ITProTV, Khan Academy, Coursera, Lynda, Masterclass, Edx and Iversity among others.

Formative assessment tools like Kahoot, Quizizz, and Socrative make the learning process interactive and enjoyable. Gamification elements, such as point systems and leaderboards can motivate students and enhance their understanding of the material. These tools provide instant feedback, enabling teachers to tailor their instruction to address individual needs. Therefore, equipping teachers with the skills to effectively integrate technology into their lessons is crucial. Platforms like EdTechTeam and Common-Sense Education offer resources, webinars, and workshops for educators to enhance their technological proficiency (Hamari, Koivisto & Sarsa, 2014). Continuous professional development ensures that teachers stay current with the latest tools and pedagogical approaches to be effective in classroom instructional delivery (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur & Sendurur, 2012).

In a post-COVID-19 era, video conferencing tools such as Zoom, Microsoft Teams, and Google Meet have become integral to maintaining connectivity between teachers and students. These tools support

synchronous communication, virtual classrooms, and collaborative activities, fostering engagement and interaction in both physical and virtual learning environments (Hodges, Moore, Lockee, Trust & Bond, 2020). In a post-COVID-19 era, video conferencing tools such as Zoom, Microsoft Teams, and Google Meet have become integral to maintaining connectivity between teachers and students. The development of these tools in teachers supports synchronous communication, virtual classrooms, and collaborative activities, fostering engagement and interaction in both physical and virtual learning environments (Hodges, Moore, Lockee, Trust & Bond, 2020).

Statement of the Problem

Building technological skills and knowledge for teachers to support their professional endeavours in a way to deliver lessons effectively seems to be a challenge since many teachers seem to lack the required digital competencies to match with the current educational practices. It is sad to state that despite the extent to which the educational system has been digitally revolutionized, and the continuous rise in the level of ICT around the world, there has not been an increased and accelerated usage of ICT amongst many teachers in public schools in Nigeria and Delta State inclusive after the Covid-19 pandemic.

It was discovered in some research experiences that teacher's digital needs assessment and ICT competence is recorded below expectation. Availability of Appropriate ICT tools/facilities is perceived to be limited within the secondary schools to encourage ICT-compliant educational practice due to ineffective management, which makes it difficult for teachers to be abreast with digital skills to deliver their lessons effectively. The lack of readiness of school management to sponsor teachers to acquire such knowledge and skills through development programmes worsens the situation. It is in these prevailing circumstances that teachers need to be managed to develop the digital competencies required to deliver lessons effectively.

Aim of the Study

The study investigated team digital needs assessment and appropriate tools gathering as a correlate of effective lesson delivery in post Covid-19 ra in public secondary schools in Delta State. The objectives of the study were to:

i. confirm the correlation of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.
ii. ascertain the correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Research Questions

i. What is the correlation of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State?
ii. What is the correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State?

Hypotheses

i. There is no significant correlation of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

ii. There is no significant correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Methodology

The design for the study was correlational. The survey comprised a populace of 5,600 teachers, in the 350 public secondary schools in the state of Delta. The sample for the study comprised 373 teachers from the 350 public secondary schools in Delta State, representing 6.7% of the population as respondents. The researcher employed a purposive sampling technique for the study. It is done in consonance with Taro Yamen's formula. That is, 6.7% of 5,600 teachers in the 350 public secondary schools in Delta State. There were two instruments utilized for data collection. Two instruments were used for the study. These were validated Team Digital Needs Assessment and Appropriate Tools Gathering Scale (TDNATGS) and the Effective Lesson Delivery Scale (ELDS) with reliability indices of 0.92 and 0.83, obtained using Cronbach Alpha Statistical procedure. Pearson Product Moment Correlation co-efficient statistics was used in answering the research questions while t-test was used in testing the hypotheses at a 0.05 level of significance.

Results.

Results of the study came from the answers to the research questions and test of hypotheses, thus:

Research Question One: What is the correlation of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State?

Table 1: Summary of Pearson Product-Moment Correlation, on the Ccorrelation Co-efficient Analysis on the Correlation of Team Digital Needs Assessment on Effective Lesson Delivery in a Post-Covid-19 Era in Secondary Schools in Delta State.

Correlations				
			Team Digital	Effective Lesson Delivery
Team Digital		Pearson Correlation	1	.745**
		Sig. (2-tailed)		.000
		N	358	358
Effective Lesson Delivery		Pearson Correlation	.745**	1
		Sig. (2-tailed)	.000	
		N	358	358

**. Correlation is significant at the 0.01 level (2-tailed).

Scale of Measurement

0%-25% = Very Low correlation
26%-50% = Low correlation
51%-75% = High Correlation
76%-100% = Very High Correlation

From the result of the above table 1, the correlation coefficient (r = 0.745) of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools has a very high correlation. The coefficient of determination (r^2 = 0.555) indicates that 55.5% of increased effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State can be determined by team digital needs assessment.

Research Question Two: What is the correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State?

Table 2: Summary of Pearson product-moment correlation co-efficient Analysis on the correlation of Appropriate Tools Gathering on Effective Lesson Delivery in a post-Covid-19 era in secondary schools in Delta State.

Correlations

		Appropriate Tools	Effective Lesson Delivery
Appropriate Tools	Pearson Correlation	1	.609**
	Sig. (2-tailed)		.000
	N	358	358
Effective Lesson Delivery	Pearson Correlation	.609**	1
	Sig. (2-tailed)	.000	
	N	358	358

**. Correlation is significant at the 0.01 level (2-tailed).

Scale of measurement for Table 1 applies

From the result of the above table 2, the correlation coefficient (r = 0.609) of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools has a high correlation. The coefficient of determination (r^2 = 0.371) indicates that 37.1% of increased effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State can be determined by appropriate tools gathering.

H_{O1}: There is no significant correlation of team digital needs assessment on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Table 4: Summary of t-test on the correlation of team digital needs assessment on effective lesson delivery in a post-Covid-19 era in secondary schools in Delta State.

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	4.163	.516		8.067	.000
	Team Digital	.721	.034	.745	21.046	.000

Data on table 4 revealed that team digital needs assessment is correlated with effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State by 0.745. The t-test value of 21.046 associated with linear regression was statistically significant at 0.000 when subjected to a 0.05 level of significance. By implication, the null hypothesis was rejected. Therefore, there is a significant correlation of team digital needs assessment on effective lesson delivery in the COVID-19 era in secondary schools in Delta State.

H_{O2}: There is no significant correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Table 5: Data on t-test on the correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	Upper Bound
1	(Constant)	6.982	.554		12.615	.000	5.894	8.071
	Appropriate Tools	.545	.038	.609	14.478	.000	.471	.619

Table 5 revealed that appropriate tool gathering is correlated with effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State by 0.609. The t-test value of 14.478 associated with linear regression was statistically significant at 0.000 when subjected to a 0.05 alpha level of significance. By implication, the null hypothesis was rejected. Therefore, there is a significant correlation of appropriate tools gathering on effective lesson delivery in a post-COVID-19 era in secondary schools in Delta State.

Summary of Findings

i. The correlation coefficient (r = 0.745) of team digital needs assessment and effective lesson delivery in a post-COVID-19 era in secondary schools has a very high correlation.

ii. The correlation coefficient (r = 0.609) of appropriate tools gathering and effective lesson delivery in a post-COVID-19 era in secondary schools has a high correlation.

Discussion of Findings

Firstly, the study of Albirini (2016) reveals alongside this study that, team digital needs assessment for teachers is a means of the acquisition of technological knowledge that boosts their abilities, and skills in the delivery of quality teaching. The findings of Ahmed (2017) in the same direction as this study revealed that team digital needs assessment should address accessibility of digital tools and resources (software, learning platforms, digital literacy skills of teachers and staff, need for training in using specific educational software and tools, familiarity with and ability to implement technology integration frameworks (e.g., TPACK - Technological Pedagogical Content Knowledge), effectiveness of communication channels among team members.

Secondly, this study agrees with the study of Berggren et al. (2015) whose work examined digital competencies needed by teachers for utilizing mobile learning applications for effective lesson delivery and figured out some of the findings including that, teachers need to possess the ability to provide students with task management tools to organize their work, exploit computer games for pedagogical purposes, create screen capture tutorials, being able to detect plagiarized works in students' assignments are part of the digital skills needed for utilizing mobile learning applications for effective lesson delivery. The findings of Smith (2017) revealed that interactive whiteboards (IWBs) and presentation tools have revolutionized traditional teaching methods. According to the study, tools like SMART Boards, Promethean Boards, and software such as Microsoft PowerPoint or Google Slides allow teachers to create dynamic and interactive presentations.

These tools facilitate multimedia integration, and real-time collaboration, and can accommodate various learning preferences. In a post-COVID-19 era, video conferencing tools such as Zoom, Microsoft Teams, and Google Meet have become integral to maintaining connectivity between teachers and students.

Thirdly, the study of Ayden & Huseyin (2022) revealed in this line that teacher-oriented professional development programmes can be applied efficiently through online education and have a crucial role in strengthening and enhancing the technical competencies of the teachers involved in distance education. Teachers need more knowledge of tools to design digital resources to support their virtual environments and they are also in need of more pedagogical and technological assistance from experts in the design of the virtual environment. In support of this study, Falore & Oredein's (2023) findings highlight the challenges of virtual teaching and learning activities and suggest solutions such as in-

service training, workshops, and seminars on digital leadership training for school leaders, teachers, and students.

Conclusion

Based on the findings of the study, it is concluded that team digital needs assessment and appropriate tools gathering have significant implications for effective lesson delivery in public secondary schools in Delta State.

Recommendations

i. The Ministry of Education through their supervisory arrangements should continue to encourage team digital needs assessment to identify areas of needs where teachers can collaboratively work together to be more active and productive in digital application in education.

ii. There is a need for the Government in collaboration with the Ministry of Education to make available, appropriate digital tools that teachers and students need to ensure effective lesson delivery and to enhance students' academic achievement in the digital education era.

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