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SYNCHRONIZING DIGITAL TECHNOLOGIES FOR TRANSFORMATION OF CURRICULUM DELIVERY OF SPECIAL TECHNIQUES AND METHODS IN LANGUAGE IN THE 21ST CENTURY IN NNAMDI AZIKIWE UNIVERSITY, AWKA

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ABSTRACT

The study explored synchronizing digital technologies for transformation of curriculum delivery of special techniques and method in language in the 21st century in Nnamdi Azikiwe University, Awka. Three research questions guided the study. Descriptive survey research design was adopted. The population of the study comprised 15 lecturers in the curriculum unit of Department of Educational Foundations, Faculty of Education, Nnamdi Azikiwe University, Awka. No sampling was done as the population was of manageable size. Self-structured Questionnaire titled "Synchronizing Digital Technologies for Transformation of Curriculum Delivery of Special Techniques and Methods in Language Questionnaire (SDTTCDSTML) was used as instrument for data collection. The instrument was validated by three experts from the Faculty of Education, Nnamdi Azikiwe University, Awka. The overall reliability of the instrument was obtained using Cronbach Alpha, which yielded the coefficient values of 0.81. Data collected were analyzed using Mean. The findings of the study revealed among others that digital technologies could be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language with the use of Learning Management System (LSM). Based on the findings of the study, it was recommended among others that universities should be encouraged to synchronize digital technologies in curriculum delivery to adequately equip the students for future technological challenges of the 21st century.

Keywords: Synchronizing, Digital technologies, Transformation, Special techniques in Language and Curriculum delivery.

Introduction

Digital technology has taken the center stage in world activities today. It has so much permeated not only institutions and organizations but also personal and domestic lives of individuals. Hardly can one do something in this 21st century without utilizing digital tools for speedy, effective and efficient discharge of duties. Digital technology (DT) is a term that is used to refer to various electronic tools and infrastructure used in data collection, storage, processing and transmission of information or ideas. Smowl (2025) explained digital technology as electronic tools and systems which create, store, process as well as transmit data digitally for improvement, efficiency and productivity. IGI Global (2025) stated that it includes devices like computers, cloud platforms, AI, and communication networks, which transform how businesses and education operates. It equally covers areas such as software, hardware, internet technologies and digital platforms which extends to different disciplines like education, health, agriculture, domestic, commercial and industrial sectors to mention but a few. Generally, DT enhances activities in all dimensions depending on its utilization. Leeds University Business School (2025) revealed that almost everyone uses digital technology from the time of waking up till going to bed and it has tremendously transformed the world. There is no gainsaying that its transformation has gone far beyond expectation especially in this 21st century in every aspect of human life and has undeniable benefits from enhanced efficiency to knowledge explosion and global connectivity; though with various challenges that requires careful management. With the rate of its transformation in the world, it has become paramount that it should be synchronized in every aspect of life particularly in education sector.

Synchronization in the context of this study refers to contemporizing two or more things at the same time. In other words, it implies using the predominant traditional teaching method of 'talk and chalk' along with digital tools in curriculum delivery. According to Kwon, Kim and Yoo (2015) synchronization is the process of delivering the same content in education through and across multiple devices or platforms due to rapid increase in smart device users with the aim of improving learning experiences using N-screen services, which is a synchronization technology for a seamless display among multiple devices. This synchronization has become an issue of necessity as Nwosu (2015) lamented that Nigeria classroom activity/interaction is such that in a class of 45 minutes, the teacher spends about 35 minutes talking without students' active participation. This definitely contradicts the global expectation of 21st century, where students are supposed to be equipped with digital-technology skills that will enable them to function optimally in this era of globalization. Lending credence to this, Unachukwu and Nwosu (2014) stressed that teacher education in Nigeria requires intervention and transformation in order to produce empowered graduates with sound lifelong learning that will transform the

world through education in an ever-evolving technological world. This transformation ranges from the nature of classroom, mode of instructional delivery, mode of students' engagement and participation to the quality of content of the lesson.

The major crux of today's education centers on the shift towards 21st century learning pedagogies. This focuses on using technology to bridge the gap between abstract representation and real-life representation of realities during the instructional process for effectiveness and efficiency as a result of the new generation of students, who are essentially technophiles. It is an undeniable fact as posited by Ikwuka, Agu, Denco and Akudolu (2021) that understanding of the contents of the lesson is effective when the instructional delivery process tends more towards the application of real-life realities than towards the abstracts. Currently, digital technologies are specifically designed for transformation of education in the classroom such as presentation software, learning management system (LSM) and game-based learning platforms (GBLP), which according to Moorhouse and Beaumont (2020) play prominent role in education. This application therefore is imperative for learners at all education level particularly those in the universities, where preparation for adult and work life experiences are taught. Principally, teaching and learning at all levels of education are done with the use of language. Consequently, the advancement of digital technology becomes central to modern education particularly in language teaching and learning, where interactive and personalized approaches enhance academic engagements and outcomes (Xu, 2024). There are so many language courses offered at different universities and faculties in Nigeria.

At Department of Educational Foundations, Faculty of Education of Nnamdi Azikiwe University, Awka; Special Techniques and Method in Language is offered as a course with NAU-EDU 214 as the code mainly for pre-service teachers in Art related courses under education to equip them with the rudiments and essential pedagogical skills of teaching languages as later professional teachers in that area of study. The course as many other courses in the university have been predominantly taught for years with the conventional teaching method, thus denying the students from acquiring problem-solving skills, meta-cognitive and critical thinking skills which are among the 21st century skills for wholesome living in the technological-driven world. Little wonder Gwany (2014) heavily lamented that the unacceptable adoption of mainly lecture method as a method of teaching is exacerbated by lack of inadequate instructional materials like slides, flip charts and audio-visual software and hardware resources as well as essential interactive media such as power point presentation, animations, virtual and augmented realities that may make lecture method very effective and efficient for teaching and learning. Eze (2023) opined that in the 21st century, the fusion of these digital tools in teaching methods breaks traditional limits of time and space and

creates accommodative flexible and immersive curriculum delivery. Hence, for education in Nigerian schools to be uniquely transformed to meet with the vital requirements of the 21st century, there must be synchronization of digital technological tools in the general teaching method used across the school levels particularly in the universities despite its challenges as the benefits may outweigh the challenges. If not, the potential benefits of employing digital tools to transform language education will continue to remain under-utilized; thereby affecting students' quality of learning, academic engagement and general life performance. It is based on this premise that the researchers sought to explore how synchronizing digital tools in curriculum delivery of Special Techniques and Method in Language may equip the students to adequately face the challenges of the 21st century.

Nonetheless, many researchers have carried out studies on synchronizing digital technologies in curriculum delivery in education sector. The study of Erlangga, Tarigan, Ternasih and Umar (2024) established that digital technologies transformation offers numerous opportunities to learners such as increased accessibility of education, development of interactive teaching methods, increased personalization in learning and more engaging experience with the use of technology such as virtual reality but with concerning challenges like unequal access to the necessary technology, lack of training and expertise in using digital tool, data security and lack of protection of students' privacy. The findings of Bond (2020) confirmed that there is positive association between flipped classroom, student engagement and learning alongside teacher-made videos and the use of collaborative digital technologies like Learning Management System (LSM). Subsequently, the findings of Arirao (2025) concluded that current challenges faced in synchronizing digital tools in teaching and learning include limited access to the internet, bias towards language and technical issues among others. Furthermore, , the findings of Roshan (2024) indicated that 70% of teachers lack AI-related professional development and it is equally established that many educators are unfamiliar with AI tools like ChatGPT (Magat and Sangalang, 2024, Ruslim and Khalid, 2024). Interestingly, studies of Rott and Marouane (2018) as well as OECD (2021) revealed that digitalization offers possibilities for basic improvements in schools and influence many aspects of school development. Pettersson (2021) disclosed from the findings of his study that fusion of digital technology in teaching and learning is a complex process that requires large-scale transformative changes beyond the technical aspects of technology and infrastructure. In addition, the findings of Wang, Chen, Hwang, Guan and Wang (2022) and Martinez, Gimenes, and Lambert (2022) reported that integration of digital games in teaching proved to be a promising pedagogical practice in STEM education which leads to increased learning outcomes. Moreover, the study of Moorhouse and Wong (2021) concluded that neither asynchronous nor synchronous-only modes

of teaching are sufficient to effectively instruct, assess and communicate with learners but virtual blended approach most likely gives the required result.

However, from the studies above, it is obvious that none of the researchers had investigated on synchronizing digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language in the 21st century at Nnamdi Azikiwe University. It is based on this backdrop that the researchers sought to delve into this study with the following research questions raised to guide the study:

1. How can digital technologies be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language at Nnamdi Azikiwe University, Awka?
2. What are the challenges that may affect synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language at the university?
3. What strategies can effectively support lecturers in synchronizing digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language at the university?

Method

Descriptive survey research design was adopted for the study. Three research questions guided the study. The area of study was Nnamdi Azikiwe University, Awka. The population of the study consisted of all 15 lecturers, from the Department of Educational Foundations (Curriculum Unit), Faculty of Education, Nnamdi Azikiwe University, Awka, who teach the course. There was no sampling as the population was of manageable size. Instrument for data collection was researchers' self-developed 15 items questionnaire titled "Synchronizing Digital Technologies for Transformation of Curriculum Delivery of Special Techniques and Methods in Language Questionnaire (SDTTCDSTML)" structured on a 4-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree to answer the research questions. The instrument was validated by three experts in the field from the Department of Educational Foundations, two from Curriculum unit and one from Measurement and Evaluation unit of Faculty of Education, Nnamdi Azikiwe University, Awka. The reliability of the instrument was ascertained using Cronbach Alpha, which yielded overall reliability index of 0.81 and was adjudged adequate for the study. The instrument was personally administered to the respondents by the researchers to ensure proper retrieval. Data collected were analyzed using descriptive statistics of Mean. The cut-off point for accepting mean score was put at 2.50 with the decision rule that any weighted mean score from 2.50 and above was interpreted as agreed, while the mean score below 2.50 was interpreted as disagreed.

Results

Table 1: Mean Rating of Respondents on how digital technologies could be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language at Nnamdi Azikiwe University, Awka

S/N	Digital technologies could be synchronized in curriculum delivery with:	Mean	Remark
1	Moodle	2.6	Agree
2	Zoom	3.0	Agree
3	Virtual tutors and chatbots	2.8	Agree
4	Blockchain	2.7	Agree
5	Digital Twins	2.5	Agree
	Mean of means	**2.7**	**Agree**

Data in Table 1 disclose that items 1, 2, 3, 4 and 5 have mean scores above the cut-off mean of 2.50 indicating that the respondents agree that all the items are the digital technologies that could be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language. The mean of means of 2.7 indicates that respondents agree that these digital technologies could by synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language at Nnamdi Azikiwe University, Awka to meet up with the education requirements of the 21st century.

Table 2: Mean Rating of Respondents on the challenges that may affect synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language at the University

S/N	Challenges that may affect synchronization of digital technologies for transformation of curriculum delivery are:	Mean	Remark
1	Poor internet connectivity	2.7	Agree
2	Lack of training on digital skills among lecturers	3.0	Agree
3	Erratic power supply	2.8	Agree
4	Insufficient provisions of digital technological tools	2.9	Agree
5	Resistance to change from traditional teaching methods	2.4	Disagree
	Mean of means	**2.8**	**Agree**

Data in Table 2 reveal that items 1, 2, 3, and 4 have mean scores above the cut-off mean of 2.50 indicating that the respondents agree that all the items are the challenges that may affect the synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language; while item 5 has mean score below the cut-off point of 2.50. This implies that the respondents are ready to synchronize digital technologies in curriculum delivery of Special Techniques and Methods in Language. The mean of means of 2.8 indicates that respondents agree that there are numerous challenges that may affect synchronization of digital technologies for

transformation of curriculum delivery of Special Techniques and Methods in Language at the university.

Table 3: Mean Rating of Respondents on strategies that could effectively support synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language at the university?

S/N	Strategies that could effectively support synchronization of digital technologies for transformation of curriculum delivery include:	Mean	Remark
1	Provision of adequate digital technological tools	2.7	Agree
2	Structured training programmes	3.2	Agree
3	Mentorship and collaboration	2.6	Agree
4	Provision of academic incentives	3.5	Agree
5	Creation of flexible learning environment	3.0	Agree
	Mean of means	**3.0**	**Agree**

Data in Table 3 show that items 1, 2, 3, 4 and 5 have mean scores above the cut-off mean of 2.50 indicating that the respondents agree that all the items are effective support for the synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language. The mean of means of 3.0 indicates that respondents agree that there is urgent support need for effective synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language at the university.

Discussion

The findings of the study revealed that digital technologies could be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language with the use of learning management system (LSM) such as Moodle and digital technological tools like Zoom, Blockchain and Digital Twins etc. This could be attributed to the fact that these tools make learning very accessible and brings about the totality of essence of curriculum delivery, coupled with the fact that 21st century students are majorly technophiles. Moreover, LMS like Moodle can enable lecturers to create, manage and deliver the course online and Digital Twins provides opportunity for interactive real-world practice experience and the nature of language education requires interaction and real-life experience. This finding agrees with the findings of Erlangga, Tarigan, Ternasih and Umar (2024) that digital technologies offers numerous opportunities to learners such as increased accessibility of education, development of interactive teaching methods, increased personalization in learning and more engaging experience and Bond (2020) supported that there is positive association in students' engagement and learning alongside teacher-made videos and the use of collaborative digital technologies like Learning Management System (LSM). In support, Wang et al (2022) and Martinez et al (2022) affirmed that integration of digital games in teaching proved to be a promising

pedagogical practice in STEM education which leads to increased learning outcomes.

The findings of the study revealed that synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language has a lot of challenges. This finding may be associated with institutional and societal problems of the nation, which is characterized with many challenges in almost all the sector of the economy particularly in education. This finding aligns with the findings of Arirao (2025) that current challenges faced in synchronizing digital tools in teaching and learning include limited access to the internet, bias towards language and technical issues among others. In addition, the finding is in tandem with the findings of Erlangga, Tarigan, Ternasih and Umar (2024) that integration of digital technologies in curriculum delivery has some concerning challenges like unequal access to the necessary technology, lack of training and expertise in using digital tool, data security and lack of protection of students' privacy.

The findings of the study revealed that there are strategies that could effectively support solidified synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language. This finding may be due to the fact that lecturers have over the years realized that the sole usage of mainly the conventional method of teaching have not yielded the expected result as well as stagnated the digital knowledge of most lecturers. Aside, global demand has necessitated that the fusion of digital technology in education has become a paramount issue of concern. Therefore, strategies to support the synchronization of digital technologies in curriculum delivery are generally encouraged. This finding is congruent with the findings of Roshan (2024), which indicated that 70% of teachers lack AI-related professional development and it is equally established that many educators are unfamiliar with AI tools like ChatGPT (Magat and Sangalang, 2024, Ruslim and Khalid, 2024). In agreement, Pettersson (2021) revealed that fusion of digital technology in teaching and learning requires large-scale transformative changes beyond the technical aspects of technology and infrastructure.

Conclusion

Based on the findings of the study, it was concluded that digital technologies could be synchronized for transformation of curriculum delivery of Special Techniques and Methods in Language with the use of learning management system. Again, synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language has a lot of challenges. Furthermore, effective support is required for effective synchronization of digital technologies for transformation of curriculum delivery of Special Techniques and Methods in Language.

Recommendation

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

1. Universities should be encouraged to synchronize digital technologies in

curriculum delivery as it has been discovered to be an effective way of curriculum delivery in this 21st century in line with the world globalization and digitalization to produce students that will adequately face societal challenges in every area of life.

2. Governments at all levels should provide concrete means of tackling numerous societal and institutionalized challenges that mar the synchronization of digital technologies in curriculum delivery.

3. Education stakeholders should provide and support effective strategies for transformation of curriculum delivery in schools especially at the university level by digitally and economically enhancing the lecturers and giving support for maintenance of such strategies.

REFERENCES

Ariroa, J. P. B. (2025). Effectiveness of AI-Powered tools in teaching and learning mathematics: basis for an intervention plan. *ISRG Journal of Arts, Humanities and Social Sciences (ISRGJAHSS), 3(3).* *https://isrgpublishers.com/isrgjahss. ISSN: 2583-7672 (online)*

Bond, M. (2020). Facilitating student engagement through the flipped learning approach in K-12: a systematic review. Computer and Education. Volume 151. 103819. https://www.sciencedirect.com

Erlangga, I. S, Tarigan, F. P,Ternasi, L & Umar. D (2024). Digital transformation in education: challenges and opportunities in modern era. *International Journal of Teaching and Learning. INJOTEL 2*(12). Online ISSN: 3025-8308 https://injotel.org

Eze, P. C. (2023). Rebranding the teaching profession in Nigeria: a strategic imperative for sustainable development. *African Educational Review, 20*(1), 45-62.

Gwany, D. M (2014). Education delivery and learning outcome. A keynote address presented at annual conference of the Nigerian Council of Educational Psychologists held at the University of Agriculture, Markurdi, Benue State, Nigeria, September 4th-6th, 2014.

IGI Global (2025). AI and digital technologies transforming global industries. https://www.igi-global.com

Ikwuka, O. I., Agu, N. N., Eze-Denco, & Akudolu, L-R. (2021). *21st century microteaching for teachers and students.* MercySeat Capstone Prints, Awka: Anambra State, Nigeria.

Kwon, SO., Kim, M. & Yoo, KE. (2015). Synchronization system for an educational content viewer. *Indian Journal of Science and Technology*, 8(5), 145-153.

Leeds University Business School (2025). Digital technologies in the changing world of work and employment- insights from the disrupting technology conference 2025. *Digital Futures at Work Centre for Employment Relations, Innovation and Change.* https://bisiness.leeds.ac.uk

Magat, R. J., & Sangalang, E. M. (2024). Teachers' familiarity, perceptions, and training needs on the use of ChatGPT in Mathematics instruction. *International Journal of Education in Mathematics, Science and Technology*, 1471 – 1487 http://doi.org/10.46328/ijemst.4332

Martinez, L., Gimenes, M. & Lambert, E. (2022). Entertainment video games for academic learning: a systematic review. *Journal of Educational Computing Research 60*(11)

Moorhouse, B. L. & Beaumont, A. (2020). Involving parents in their children's school-based English writing using digital learning. *RELC Journal*, 51(2), 268-276. https://www.researchgate.net

Moorhouse, B. L. & Wong, K. M. (2021). Thriving or surviving emergency remote teaching necessitated by COVID-19: University teachers' perspectives. *The Asia-Pacific Education Researcher, 30*(3), 173-187 https://link.springer.com

Nwosu, K. C. (2015). CogEd in Nigeria: Present classroom scenario and the need for strong CogEd group. www.iacesa.co.za/wp.../Nwosu-K.C.-Cognitive-Education-in-Nigeria.pdf

OECD. (2021). OECD digital education outlook 2021. Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots. *OECD Publishing, Paris*, https://doi.org/10/10.1787/589b283f-en.

Petterson, F. (2021). Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept. *Education and Information Technologies*, *26*(1): 187-204doi.10.1007/s10639-020-10239-8.

Rott, B. & Marouane, C. (2018). Digitalization in schools-organization, collaboration and communication. *In Digital Marketplaces Unleashed (pp 113-124).* Springer, Berlin, Heidelberg.

Roshan, S. (2024). Teacher training and professional development for implementing AI-based educational tools. *Journal of Asian Development Studies. 13* (2), 1972-1987. Doi:10/62345/jads.2024. 13.2.154

Ruslim, M. I., & Khalid. F. (2024). The use of artificial intelligence in differentiated instruction classroom. *International Journal of Academic Research in Business and Social Science. 14* (8). https://doi.org/10.6007/ijarbasv14

Smowl Tech (2025). Understanding digital technology, from its invention to its future. https://smowl.net

Unachukwu, G. C. & Nwosu, K. C. (2014a). *Teachers and the 21st century skills: A critical look at teacher education in Nigeria. In N. A. Nwagwu & U. M. O. Ivowi (Eds). Education in Nigeria: Development and Challenges.* A book of readings in memory of Prof A. B. Fafunwa. Foremost Educational Services Ltd*: Lagos*.

Wang, LH., Chen, B., Hwang, GJ., Guan, J & Wang, Y. (2022). Effects of digital game-based STEM education on students' learning achievement: a meta-analysis. *International Journal of STEM Education, IJ STEM Ed* 9(26,) htpps://doi.org/10.1186/40594-022-00344-0

Xu, C. (2024). A systematic review of the potential influencing factors for CHATGPT-assisted education. *International Journal of Technology-Enhanced Education,* 3(1), 1-19 https://www.semanticscholar.org