



THE CHALLENGES OF TECHNOLOGY INTEGRATION IN ART PEDAGOGY WITHIN NIGERIA: THE WAY FORWARD

OHAMBELE JAMES CHIMEZIE

Art Pedagogy Section, Department of Fine Art,
Ahmadu Bello University Zaria.

Abstract

Technology integration is the use of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving. Generally speaking, the curriculum drives the use of technology and not vice-versa. However, technology integration requires infrastructure, continual maintenance and repair. The infrastructure required to operate and support technology integration in art pedagogy include at the basic level electricity, internet service providers, routers, modems, and personnel to maintain the network (Grinter and Edwards, 2005). Other disciplines have integrated technology making them fit in well into this technological age, therefore, art pedagogy must not be an exception. Developments in teaching should not leave art pedagogy out in the techniques or media used in the 21st Century. The health of the economy of any country, poor or rich, developed or developing, depends substantially on the level and quality of the education it provides to its workforce. Reforms in education are occurring throughout the world and one of the tenets of the reform is the introduction and integration of technology in the education system. The successful integration of technology depends

largely on how well policy makers understand and appreciate the dynamics of such integration. If properly integrated, technology has the potential to promote the development of students'

KEYWORDS: art,
integration, Nigeria,
pedagogy,
technology.

decision-making and problem-solving skills, data processing skills, and communication (Whitworth and Berson, 2003). Some challenges of technology integration in art pedagogy within Nigeria are epileptic electric power, poor internet connectivity, inadequate training and professional development, teachers are not valued and lack of sustainability. In spite of these challenges, the way forward is to think ahead and incorporate some trends impacting education which include (i) an increasing shift toward

blended learning, online learning and technology-driven collaborative learning (ii) the growth in the potential of social networks to allow teachers to engage students online (iii) openness of educational resources and technology (iv) Bring Your Own Devices (BOYD) is becoming more common as the cost of technology drops for students and (v) the role of the educator is being challenged as resources become more accessible on the internet.

Introduction

The Federal Republic of Nigeria, commonly referred to as Nigeria, is a federal republic in West Africa, bordering Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast in the south lies on the Gulf of Guinea in the Atlantic Ocean. It comprises 36 states and the Federal Capital Territory, where the capital, Abuja is located. Nigeria is officially a democratic secular country (Wikipedia, 2017). Education in Nigeria is overseen by the Ministry of Education. Local authorities take responsibility for implementing policy for state-controlled public education and state schools at a regional level. The education system is divided into kindergarten, primary education, secondary education and tertiary education. After the 1970s oil bloom, tertiary education was improved so that it would reach every sub-region of Nigeria. 68% of the Nigerian population is literate and the rate for men (75.7%) is higher than that for women (60.6%). The educational system consists of six years of primary school, three years of junior secondary school, three years of senior secondary school, and four, five or six years of university education leading to a bachelor's degree (United States Library of Congress in Wikipedia, 2017).

However, when considering technology integration in Nigeria, we need to consider some of the challenges facing its implementation in Nigeria. Aside the numerous challenges of technology integration in Nigeria, there are five things slowing the growth of technology in Nigeria. They are:

1. The government does not value technology as much as they should;
2. Nigerians do not understand or trust technology;
3. The cost of running technology is too high;
4. It exposes corruption;
5. Nigerians do not trust things made in Nigeria (Ofunne, 2016).

Technology integration is the use of technology resources-computers, mobile devices like smart-phones and tablets, digital cameras, social media platforms and networks, software applications, the internet and so on in daily classroom

practices and in the management of a school. Technology integration is the use of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving. Generally speaking, the curriculum drives the use of technology and not vice versa (Jolene, 2008). Technology integration is defined as the use of technology to enhance and support the educational environment. Technology integration in the classroom can also support classroom instruction by creating opportunities for students to complete assignments on the computer rather than the normal pencil and paper. Technology integration in class would help students to explore more. The International Society for Technology in Education (ISTE) offers this definition of technology integration: curriculum integration with the use of technology involves the infusion of technology as a tool to enhance the learning in a content area or multidisciplinary setting... Effective integration of technology is achieved when students are able to select technology tools to help them obtain information in a timely manner, analyze and synthesize the information and present it professionally. The technology should become an integral part of how the classroom functions-as accessible as all other classroom tools. The focus in each lesson or unit is the curriculum outcome not the technology.

Integrating technology with standard curriculum can not only give students a sense of power, but also allows for more advanced learning among broad topics (Jackson, Pompe & Krieshok, 2011). However, these technologies require infrastructure, continual maintenance, and repair-one determining element among many, in how these technologies can be used for curricular purposes and whether or not they will be successful. Examples of the infrastructure required to operate and support technology integration in schools include at the basic level electricity, internet service providers, routers, modems, and personnel to maintain the network beyond the initial cost of the hardware and software (Grinter and Edwards, 2005). According to Kervin and Mantei (2010), integrating Information and Communication Technology (ICT) is often closely monitored and evaluated due to the current climate of accountability, outcome-based education and standardization in assessment. Technology integration can in some instances be problematic. A high ratio of students to technological device has been shown to impede or slow learning and task competition (Yu, 2013).

In some instances, dyadic peer interaction centered on integrated technology has proven to develop a more cooperative sense of social relations. Success or failure of technology integration is largely dependent on factors beyond the technology.

The availability of appropriate software for the technology being integrated is also problematic in terms of software accessibility to students and educators (Yu, 2013). Technology contributes to global development and diversity in classrooms and helps develop upon the fundamental building blocks needed for students to achieve more complex ideas. In order for technology to make an impact within the educational system, teachers and students must access to technology in a contextual matter that is culturally relevant, responsive and meaningful to their educational practice and that promotes quality teaching and active student learning (Song and Owens, 2011).

Successful technology integration is achieved when the use of technology is:

- routine and transparent
- accessible and readily available for the task at hand
- supporting the curricular goals, and helping the students to effectively reach their goals.

When technology integration is at its best, a child or a teacher does not stop to think that he or she is using a technology tool-it is a second nature. And students are often more actively engaged in projects when technology tools are a seamless part of the learning process. Willingness to embrace change is also a major requirement for successful technology integration. Technology is continuously, and rapidly, evolving. It is an ongoing process that demands continual learning. When effectively integrated into the curriculum, technology tools can extend learning in powerful ways. These tools can provide students and teachers with:

- access to up-to-date, primary source material
- methods of collecting/recording data
- ways to collaborate with students, teachers and experts around the world
- opportunities for expressing understanding via multimedia
- learning that is relevant and assessment that is authentic
- training for publishing and presenting their new knowledge.

There are varied types of technology integration tools, however, new technology tools and ideas emerge daily. These tools include (i) online learning and blended classroom, (ii) project-based activities incorporating technology, (iii) game-based learning and assessment, (iv) learning with mobile and hand held devices, (v) instructional tools like interactive whiteboards and Students Response Systems, (vi) web-based projects, explorations and research, (vii) student-created media

like podcasts, videos and slideshows, (viii) collaborative online tools like Wikis or Google Docs, and (ix) using social media to engage students.

According to Ruben (2017), the following are the levels of technology integration:

- Sparse- technology is rarely used or available. Students rarely use technology to complete assignments or projects.
- Basic- technology is used or available occasionally/often in a lab rather than the classroom. Students are comfortable with one or two tools and sometimes use these tools to create projects that show understanding of content.
- Comfortable- technology is used in the classroom on a fairly regular basis. Students are comfortable with a variety of tools and often use these tools to create projects that show understanding of content.
- Seamless- students employ technology daily in the classroom using a variety of tools to complete assignments and create projects that show a deep understanding of content.

Technology forms an intricate part of today's society that it is rapidly evolving and advancing on multi-tiered levels (Newbill & Baum, 2013). Despite global advancements in the span and availability of technology, schools rarely maintain the same momentum in access to equipment, educator professional development, and onsite educational support (Lee & Spires, 2009; Ritzhaupt, Dawson, & Cavanaugh, 2012). Despite these drawbacks, educators as a community carry the responsibility for preparing students for a future that includes 21st Century technology readiness skills (Hohlfeld, Ritzhaupt, Barron, & Kemker, 2008; Jones, Fox, & Douglas, 2011; Larson & Miller, 2012; Voogt & Roblin, 2012).

Benefits of Technology Integration in Art Pedagogy

The future of the art pedagogical system is practically determined by the development of technology. Some educators and experts are against the trends of implementing educational technology tools and apps in every single aspect of the schooling system, mainly because technology is a source of distraction for students. However, proper technology integration guides students towards greater understanding of all concepts covered in class. The teaching strategies based on educational technology can be described as ethical practices that facilitate the students' learning and boost their capacity, productivity and performance. Technology integration in art pedagogy inspires positive changes in

teaching methods on an international level. Are you still wondering whether or not you should start relying on different apps and tools? Below are some benefits of technology integration in art pedagogy:

- (i) **Technology makes teaching easy:** it is difficult to present tough concepts in art pedagogy that make the concept clear for each and every student in the class. Technology has that power. With audio-visual presentations, your students will understand exactly how the knowledge is applied in practice. You can use projectors and computer presentations to deliver any type of lesson or instruction and improve the level of comprehension within the class
- (ii) **Technology helps you track students' progress:** today with technology you can rely on platforms and tools that enable you to keep track of the individual achievements of your students
- (iii) **Educational technology is good to the environment:** can you imagine the amount of paper and number of trees that would be saved if every school decided to introduce digital textbooks? A tutor can instruct his/her students to take online tests and submit their papers and homework through email
- (iv) **Thanks to technology, students enjoy learning:** students are addicted to Face-book, Pinterest, Instagram, Digg and other websites from a very early age. The interest can distract them from the learning process, but you can also use their inclination to spend time online for a good purpose. Making learning enjoyable. Use touch-screen technology and online presentations to make the classes more attractive. You can set up a private Face-book group for your class and inspire constructive conversation
- (v) **Technology makes distance learning more accessible than ever:** without the wonders of the internet, people would not be able to get access to any type of information at the very moment they think of it. Today, distance learning is one of the most trending learning methods. Virtual lessons are slowly taking the place of traditional lectures. Students can organize their time in a way that works for them, and they can easily gain the knowledge they are interested in.
- (vi) **Students and teachers can access information at any time:** this is possibly the most obvious benefits of technology. When old-school teachers were students, they had to spend hours in the library looking

for the information they needed. Today, technology integration makes everything different and simpler. Students can easily access newspapers, scientific articles, studies and any other type of content online. They can write better, deeper academic papers because they can support their argument with more evidence. When you give a lecture the student do not understand in art pedagogy, they can find simpler instructions and information with a single Google search.

- (vii) **Technology makes collaboration more effective:** think about the way collaboration looks like in a traditional classroom setting. You organize groups, assign the projects, and suddenly the class becomes a complete mess. Some students express their opinions too loudly and firmly, while others do not get an opportunity to be heard. Online tools and apps offer a unique setting for students to engage in a group project. They can do the work from home; the team is connected through the internet and everyone is inspired by the focused environment.

You stand no chance of being called ‘the cool teacher’ if you keep neglecting the use of educational technology in the classroom. The benefits of technology integration described above should convince you of the fact that this form of education is great for both students and teachers.

Challenges of Technology Integration in Art Pedagogy within Nigeria

The challenges of technology integration in art pedagogy within Africa are two types-international and national. At the international level, it faces the same global market competition as economically advanced countries- a market that is increasingly being driven by information and knowledge instead of industries. Many schools in the developing countries are still using the teacher-centered model in classroom instruction as opposed to a collaborative and constructivist one that current education reforms recommend (Williams, 2000). Students in such schools are thus not being educated to enter the knowledge-based economy of the near future. If we are to meet any of these challenges, we need to make some serious changes. First, is something we have come to call ‘passive-colonization’. Most African countries have now celebrated fifty-years of independence, but the colonialist mentality remains. Nigerians still lack the confidence in doing things for themselves. As much as we have creative people in Nigeria, there is an intellectual weakness amongst Nigerians and a lack of talent and deficit of trust. This is

compounded by decades of reliance on Non-Governmental Organizations (NGOs) and Aids. In the technology sector, this manifest itself as duplicated projects, quick-trial pilots with no back up funding, well-meaning competitions run by big institutions without any sustainable marketing plan for the technologies they produce and investors still reluctant to fund small project because of fear of knowledge of the Nigerian market.

The global rules for foreign direct involvement in how Nigerians should run their businesses must now also change. Countries with ‘robust’ infrastructures-like South Africa, Rwanda, Zambia, Gabon and Angola-with highly trained workforces and large domestic markets are positioning themselves in this highly competitive game and are succeeding. Other countries must follow their lead. There is also a need for the education system in Nigeria to incorporate and promote art, science and technology if they want to match the rest of the world in the decades to come. The challenge of poor and absent energy supply is found everywhere in Nigeria. Many rural areas do not have electricity and most cities cannot afford constant power. Power shortages are common even in big cities that are industrial centers (Damien, 2014). Efficient technology use goes beyond importing machinery. It entails building capabilities, technical understanding and an information base, acquiring new technical skills and managerial practices and forging linkages with other firms and institutions. It requires the ability to understand and master new technology; to adapt it to local factors and conditions; and to upgrade it as technologies improve and new products appear.

According to researchers, technology integration in art pedagogy has not been occurring effectively or efficiently in the classroom due to barriers reported by teachers and other school staff (An & Reigeluth, 2011; Hammonds, et al., 2013). Worldwide, the most commonly reported barriers are a combination of

- (i) low self-confidence,
- (ii) deficiencies in technology competence, and
- (iii) anxiety regarding usage, appearances, and curriculum time (Inan & Lowther, 2010; Al-Khatib, 2011; Kopcha, 2012; Ritzhaupt, et al., 2012).

Additional barriers include

- (i) limited access to technology and poor or no consistent power supply,
- (ii) training opportunities and
- (iii) the lack of support in schools without educational specialists (West, 2011; Kurt, 2013).

Other challenges are

- (i) unavailability of policy on technology,
- (ii) technophobia,
- (iii) insufficient resources,
- (iv) a lack of teachers qualified in technology integration,
- (v) maintenance and technical problems,
- (vi) risks and security problems,
- (vii) poor parental involvement,
- (viii) insufficient time and computer jargon (Ramorola, 2013).

The way forward

In spite of these challenges, the way forward is to think ahead and incorporate some trends impacting education. In the context of those challenges, there are emerging technologies that will have significant impact on education. According to Wabisabi Learning (2019), the identified five key trends impacting education over the next five years include:

- (i) an increasing shift toward blended learning, online-learning, and technology-driven collaborative learning;
- (ii) the growth in the potential of social networks to allow teachers to engage students online;
- (iii) openness of educational resources and technology is becoming a value;
- (iv) Bring Your Own Devices (BOYD) is becoming more common as the cost of technology drops for students; and
- (v) the role of the educator is being challenged as resources become more accessible on the internet.

Simple applications of digital media tools like webcams that allow non-disruptive peer observation, offer considerable promise in giving teachers timely feedback they can use. Cloud computing was identified as the top trend. Mobile learning is another trend. Because of their portability, flexibility and natural, intuitive interfaces, mobiles are especially enticing to schools, and a growing number of them have turned to tablets as a cost-effective strategy for one-to-one learning- a systematic solution in which every student is provided a device that can be used to support learning in and outside of the classroom. Open educational resources is essentially the opposite of cumbersome, expensive and quickly outdated textbooks. Educators are taking advantage of open resources to expand their curricula with media-rich tools and texts that can be used and adapted to specific

lessons. Formerly bound by the framework of standardized course materials, teachers now have access to a wealth of digital information that they can use to meet students' expectations.

Conclusion

The infrastructure required to operate and support technology integration in art pedagogy include at the basic level electricity, internet service providers, routers, modems, and personnel to maintain the network (Grinter and Edwards, 2005). Other disciplines have integrated technology making them fit in well into this technological age, therefore, art pedagogy must not be an exception. Developments in teaching should not leave art pedagogy out in the techniques or media used in the 21st Century. Reforms in education are occurring throughout the world and one of the tenets of the reform is the introduction and integration of technology in the education system. The successful integration of technology depends largely on how well policy makers understand and appreciate the dynamics of such integration. If properly integrated, technology has the potential to promote the development of students' decision-making and problem-solving skills, data processing skills, and communication (Whitworth and Berson, 2003). Some challenges of technology integration in art pedagogy within Nigeria are epileptic electric power, poor internet connectivity, inadequate training and professional development, teachers are not valued and lack of sustainability. However, there is a way out which is to move forward in the use of emerging trends impacting education especially for art pedagogy.

Recommendations

The following recommendations if considered will go a long way to facilitate the integration of technology in art pedagogy within Nigeria:

- The curriculum-planners for art pedagogy should design, develop and help schools to implement a common policy regarding the integration of technology in art pedagogy.
- Institutions of learning should identify skilled facilitators who can provide training and support to art teachers at school levels.
- Enough resources and a sufficient number of teachers in the field of technology should be equally distributed to schools. Additionally, all schools should have access to the internet to allow teachers and learners to do research.

- Art schools should allocate enough time and resources for technology integration in their teaching and learning.
- Security systems should be implemented to minimize theft and vandalism of technological assets.
- In-depth further research or related issues should be conducted.

References:

- Al-Khatib, H. (2011). Technology enhanced learning: Virtual realities: concrete results case study on the impact of TEL on learning. *European Journal of Open Distance and E-learning*, 1 (1), 1-12. Retrieved from <http://files.eric.ed.gov/fulltext/EJ936385.pdf>
- An, Y.J. & Reigeluth, C. (2011). Creating technology-enhanced, learner-centered classrooms: K-12 teachers' beliefs, perceptions, barriers, and support needs. *Journal of Digital Learning in Teacher Education*, 28 (2), 54-62. Doi:10.1080/21532974.2011.10784681
- Damien, S. (2014). Connecting Africa: The Best investments in the next generation in Africa Progress Panel 2017.
- Grinter, R. and Edwards, W.K. (2005). The Work to make a Home Network work. *Proceedings of the Ninth European Conference on Computer-Supported Cooperative work*, Paris, France, pp 469-488
- Hammonds, L., Matherson, L.H., Wilson, E.K., & Wright, V.H. (2013). Gateway tools: five tools to allow teachers to overcome barriers to technology integration. *The Delta Kappa Gamma Bulletin*, Fall, 36-41. Retrieved from http://www.dkg.org/sites/default/files/files-fordownload/Fall%202013-Future%20of%20Education_o.pdf#page=36
- Hohlfeld, T.N. Ritzhaupt, A.D., Barron, A.E., & Kemker, K. (2008). Examining the digital divide in K-12 public schools: Four-year trends for supporting ICT Literacy in Florida. *Computers and Education*, 51 (4), 1648-1663. Doi: 10.1016/j.compedu.2008.04.002
- Inan, F.A. & Lowther, D.L. (2010). Factors affecting technology integration in K-12 classrooms: A path model. *Education Technology Research Development*, 58 (2), 137-154. Doi: 10.1007/511423-009-9132-y
- Jackson, S., Pompe, A., Krieshok, G. (2011). 'Things Fall Apart': Maintenance, Repair, and Technology for Education Initiatives in Rural Namibia. *Proceedings of the 2011 Conference*. Seattle, Washington. Pp283-90

- Jolene, D. (2008). 'Teachers of the 21st Century know the What, Why and How of Technology Integration.
- Jones, R., Fox, C., & Douglas, L. (2011). Transforming Education to ensure all students are successful in the 21st Century. National Educational Technology Trends: 2011. May-2011, 1-121. Retrieved from http://www.setda.org/wpcontent/uploads/2013/12/NationalTrendsFinal_May_112011.pdf
- Kervin, L., and Mantei, J. (2010). 'Supporting educators with the inclusion of technology within literacy classrooms: A framework for 'action'. Journal of Technology Integration in the classroom. 2 (3):43-54.
- Kopcha, T.J. (2012). Teachers' perceptions of the barriers to technology integration and practices with technology under situated professional development. Computers and Education, 59 (4), 1109-1121. Doi: 10.1016/j.compedu.2012.05.014.
- Kurt, S. (2013). Creating technology-enriched classrooms: Implementational challenges in Turkish education. Learning, Media and Technology, 38 (1), 1-17. Doi: 10.1080/17439884.2013.776077
- Larson, L. & Miller, T. (2012). 21st Century skills: Prepare students for the future. Kappa Delta P. Record, 47 (3), 121-123. Doi: 10.1080/00228958.2011.10516575
- Lee, J. & Spires, H. (2009). What students think about technology and academic engagement in school: Implications for middle grades teaching and learning. AACEJ, 17 (2), 61-81. Retrieved from <http://www.editlib.org/p/27007/>
- Marieme, J. (2014). Reinventing Technology in Africa for Africans. In Matter of Life and Technology Developing Country Internet. BBC Future (2017). Blog.
- Newbill, P. & Baum, L. (2013). Design Creativity. Learning & Leading with Technology, 41(4), 17-19. Retrieved from http://www.learningandleading-digital.com/learning_leading/201212#pg19
- Norman, S. (2016). 7 Benefits of Technology Iteration in the Education Sphere. E-Learning Industry.
- Ofunne, A. (2016). 5 Things Slowing the Growth of Technology in Nigeria. Retrieved on March 7, 2018 from techcabal.com/2016/01/04/5-things-slowing-the-growth-of-technology-in-Nigeria.
- Ramorola, M.Z. (2013). Challenge of effective technology integration into teaching and learning. Africa Education Review 10 (4), pp654-670. South Africa: University of South Africa Press.
- Ritzhaupt, A.D., Dawson, K. & Cavanaugh, C. (2012). An Investigation of factors influencing student use of technology in K-12 classrooms using path analysis.

- Journal of Educational Computing Research, 46 (3), 229-254. Doi: 10.2190/ec.46c.36
- Ruben, P. (2017). What is Successful Technology Integration? In Edutopia-George Lucas Educational Foundation.
- Song, S., and Owens, E. (2011). ‘Rethinking Technology Disparities and Instructional Practices within Urban Schools; Recommendations for School Leadership and Teacher Training. Journal of Technology Integration in the classroom. 3 (2):23-36
- Voogt, J. & Roblin, N.P. (2002). A comparative analysis of international frameworks for 21st Century competences: Implications for national curriculum policies. Journal of Curriculum Studies, 44 (3), 299-321. Doi: 10.1080/00220272.2012.668938.
- Wabisabi Learning (2019). 6 Technology Challenges Facing Education. Retrieved on November 22, 2019 from <https://www.wabisabilearning.com>
- West, D.M. (2011). Using Technology to personalize learning and assess students in real time. Washington, DC: Brookings Institution
- Whitworth, S. and Berson, M. (2003). Computer technology in the social studies: An examination of the effectiveness literature (1996-2001). Contemporary Issues in Technology and Teacher Education, 2 (4).
- Wikipedia (2017). Nigeria. Retrieved on March 7, 2018 from <https://en.wikipedia.org/wiki/Nigeria>.
- Williams, M.D. (2000). Introduction: What is technology integration? M.D. Williams (Ed.). Integrating Technology into Teaching and Learning: Concepts and Applications. Singapore: Prentice Hall.
- Yu, C. (2013). ‘The Integration of Technology in the 21st Century Classroom: Teachers’ Attitudes and Pedagogical Beliefs toward Emerging Technologies’. Journal of Technology Integration in the Classroom. 5 (1): 6