

BRIDGING LEARNING GAPS IN FINE ARTS EDUCATION: THE ROLE OF INSTRUCTIONAL MEDIA AND EDUCATIONAL TECHNOLOGY TOOLS

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Abstract

The twenty-first Century has witnessed remarkable technological advancements that have transformed educational practices globally. Fine Arts education, which emphasizes creativity, innovation, practical skills, and cultural expression, has equally benefited from these developments. However, challenges such as inadequate instructional materials, limited access to learning resources, insufficient technological infrastructure, and ineffective teaching strategies continue to create learning gaps among students. This paper examines the role of instructional media and educational technology tools in bridging these gaps in Fine and Applied Arts education. It discusses the meaning of educational technology, its relationship with the Nigerian National Policy on Education, modern educational technology tools that facilitate learning and the contributions of instructional media and educational technology to effective teaching and learning in the twenty-first Century. This paper further highlights the practical application of instructional media and educational technology tools in various areas of Fine Arts, including Textile Design, Painting, Fashion Design, Graphic Design, Ceramics, Sculpture, Arts History and Arts Education. The paper concludes that the integration of instructional media and educational technology tools can significantly enhance learners' creativity, practical skill acquisition, learner engagement while preparing student for participation in the contemporary creative industry. Recommendations are provided for the effective incorporation of these resources into Nigerian classrooms.

Keywords: Educational technology, instructional media, fine arts education, teaching and learning, digital learning

Introduction

The persistent challenge of achieving meaningful learning outcomes in Fine Arts education has become a growing concern among educators across the globe. Despite the recognized importance of Fine Arts in fostering creativity, critical thinking, innovation, and cultural appreciation, many students continue to demonstrate inadequate understanding of artistic concepts and limited practical competencies. Researchers have attributed this challenge largely to the insufficient use of instructional media and educational technology tools in the teaching-learning process. Richard Mayer (2014) observed that learners understand and retain knowledge more effectively when instruction incorporates appropriate multimedia resources that combine words, images, audio, and interactive elements. The inability of many educational institutions to effectively integrate such instructional resources into Fine Arts teaching has widened the gap between instructional delivery and students' learning needs, thereby affecting academic achievement and skill acquisition.

The acquisition of education all over the world is increasingly being influenced by the processes and practices of educational technology. Modern educational policies and their implementation are largely products of technological innovations designed to improve teaching effectiveness and learning outcomes. The Association for Educational

Communications and Technology (2004) defined educational technology as the ethical practice of facilitating learning and improving performance through the creation, use, and management of appropriate technological processes and resources. This definition underscores the importance of technology in enhancing educational experiences and addressing challenges associated with teaching and learning.

In contemporary educational settings, instructional media and educational technology tools have become indispensable components of effective teaching and learning. Instructional media such as charts, models, pictures, videos, projectors, and computer-based resources enhance communication between teachers and learners, making abstract concepts more concrete and understandable. Similarly, educational technology tools provide interactive learning experiences that promote learners' engagement, motivation, creativity, and knowledge retention. Richard Mayer (2014) emphasized that meaningful learning occurs when learners actively engage with well-designed multimedia instructional materials that support cognitive processing and facilitate deeper understanding of subject matter.

In Fine Arts education, where visual representation, demonstration, and practical engagement are central to learning, the integration of instructional media and educational technology tools is particularly important. These resources enable learners to observe artistic techniques, explore diverse artistic styles, and participate in interactive learning experiences that bridge the gap between theoretical knowledge and practical application. Through the effective use of instructional media and educational technology tools, teachers can create learner-centered environments that stimulate creativity, improve artistic skills, and enhance academic performance. Consequently, the utilization of these resources has become essential for improving the quality of teaching and learning in Fine Arts and for addressing the learning challenges experienced by students. According to Association for Educational Communication and Technology (AECT) (2004), the history of organized educational and training can be viewed as long arduous struggle to extend opportunities to more people and to devise means of helping those people learn better through the serendipitous events of everyday life. It is important to note here, that organized education takes place in institutions of learning where instructional activities are fashioned out to guide the achievement of educational goals.

It is equally the role/duty of educational institutions and designated authorities to provide different kinds of resources to support the central mission of facilitating learning, ie supporting both the learners and the instructors or educators by exposing them to the use of appropriate principles and strategies as well as technologies necessary for optimal learning. These technologies expand the possibilities of supporting learning both individually or in groups in the classroom or at a distance especially as learning resources have now become digitalized. In support of the above, Rosen and Wolf (2011) opined that educational technology can play a significant role in the enhancement of educational systems, to address knowledge and skills needed in the 21st Century; that technologically rich environments can more effectively promote educational goals, such as learning motivation, teamwork and higher order thinking skills when compared with the traditional teaching and learning.

Education remains one of the most important instruments for national development and social transformation. In contemporary society, the increasing influence of technology has revolutionized teaching and learning processes across all disciplines. Fine Arts

education, which encompasses drawing, painting, sculpture, ceramics, graphics, textile design, art appreciation, fashion design and art history, requires effective instructional approaches that stimulate creativity and practical skill acquisition. Traditionally, Fine Arts teaching relied heavily on physical demonstrations, artworks, charts, models, and studio activities. While these methods remain valuable, modern educational demands require the integration of technological resources to enhance learning experiences and address challenges associated with access to information, instructional resources, and learner engagement.

The combination of instructional media and educational technology tools provides opportunities for learners to interact with artistic concepts in more meaningful ways. Their effective utilization can bridge learning gaps, improve academic performance, and prepare students for participation in a rapidly changing digital society. Furthermore, the application of instructional media and educational technology tools varies across different areas of Fine Arts Education such as Textile Design, Painting, Fashion Design, Graphic Design, Ceramics, Sculpture, Art History and Art Education. The effective utilization of these resources not only enhances creativity and practical skill acquisition but also prepares learners for contemporary artistic practices and the demands of the digital age.

Therefore, this paper examines how instructional media and educational technology tools can be utilized to bridge learning gaps and improve teaching and learning outcomes in Fine Arts education. Brown (2017) refers to instructional media as devices with instructional content that is used for teaching and learning purpose including books, supplementary reading materials, audio visual and other materials script for audio and television instruction and manipulation. Bello (2009) identifies instructional media as object or devices which help the teacher to make learning meaningful, knowledgeable, understandable and enjoyable to the students or learners. However, to make education learner-oriented, there came the need to fashion out policies and practices that would bridge the gaps in learning in the society. Although educational goals are stated in the National Policy on Education (2004), they can become futile ventures if proper implementation is not effectively carried out. If instructional media and educational technology has potentials for helping to enhance the achievement of educational goals, then proper application will no doubt, help in bridging the gaps in learning especially when it enables students to make choices about how to learn and take on a much more active role in learning process while utilizing the various technologies provided for education in the digital age - what then is Educational Technology?

Conceptualization

Many have explained Educational Technology in different ways. For instance, Aziz (2010) defined it as the implementation of appropriate tools/techniques and processes that facilitate the application of senses, memory and cognition to enhance teaching practices and improve learning outcomes. Luppini (2005) described it as a field concerned with the design, development, utilization, management and evaluation of processes and resources for learning. Educational technology is the systematic application of scientific knowledge, technological resources, and instructional processes to improve teaching and learning. It involves the use of technological devices, software applications, digital resources, and instructional strategies designed to facilitate effective learning experiences.

Educational technology is not limited to the use of computers alone; it encompasses the planning, development, implementation, and evaluation of instructional

processes using appropriate technological resources. In Fine Arts education, educational technology supports the teaching of artistic concepts, practical skills, and creative expression through digital and interactive platforms. Educational technology enhances communication between teachers and learners, promotes active participation, facilitates access to information, and supports individualized learning experiences. From the definition above, educational technology answers the following questions in education. What is the educational problem to be solved? How can it be solved? What resources can be used to solve it? How can the instructional media and educational outcomes be measured? In other words, Educational Technology is a systematic approach to solving educational problems. For the goal of Educational Technology, in the Edutech Wiki, (2014) it is explained that educational technology sometimes aims at increased efficiency or effectiveness of current practice, but frequently, at pedagogical change. It addresses foundational issues of learning and social organization etc.

Educational Technology and the National Policy on Education

The formulation of educational policies is intended to provide clear guidelines on what should be done and the procedures for accomplishing educational goals, thereby ensuring the effective administration and development of the education system. According to the National Policy on Education (2004), educational technology services play a vital role in facilitating the implementation of educational policies, achieving policy objectives, and enhancing the overall effectiveness of the educational system. The policy further emphasizes that educational technology should contribute to the development and improvement of educational programmes, enhance teaching effectiveness and teachers' professional competence, and make learning experiences more meaningful and engaging for learners. Additionally, it seeks to promote the effective utilization of instructional resources and technological tools to improve the quality of teaching and learning across all levels of education.

The policy advocates the provision of technological facilities and digital resources that support teaching and learning at all levels of education. It also encourages the development of digital literacy skills among learners and teachers to enable them to function effectively in a technology-driven society. In Fine Art education, the National policy on Education supports the use of technological tools that encourage creativity, innovation, problem-solving, and skill development. The policy further promotes the incorporation of technology into curriculum implementation to enhance educational quality and accessibility. Consequently, educational technology serves as a vital instrument for achieving the goals of the National Policy on Education by facilitating learner-centered instruction, improving access, and promoting lifelong learning.

Some Modern Educational Technology Tools that Help to Bridge Gaps in Learning

People today live in the digital age, an age where several technological tools introduced into education are helping learning. The following Educational Technology tools come in handy for classroom learning:

- **Computers and Laptops:** Computers facilitate research, digital design, image editing, virtual learning, and access to educational resources.
- **Multimedia Projectors:** Projectors enable teachers to present visual materials, artworks, demonstrations videos, and presentations effectively.
- **Interactive Whiteboards:** Interactive whiteboards promote learner participation through interactive lessons and visual demonstrations.

- Digital Art and Design Software: Applications such as Adobe Photoshop, Adobe Illustrator, CorelDraw, Procreate, and AutoCAD support artistic creation, design development, and digital experimentation.
- Virtual Museums and Galleries: These platforms allow students to explore artworks and cultural collections from different parts of the world without physical travel.
- Artificial Intelligence (AI) Tools: AI tools assist students in research, idea generation, design exploration, content creation, and personalized learning experience, facilitating research, generating creative ideas, and assisting student in solving problems. In Fine Arts Education, AI can be used for concept development, design exploration, visual analysis and creative experimentation. Educational videos and Multimedia Resources, videos and animations simplify complex artistic concepts and provide step by step demonstrations of artistic techniques.

Role of Instructional Media and Educational Technology in Bridging the Gaps in Learning in the Twenty-First Century

Instructional media and educational technology play significant roles in addressing learning challenges and improving educational outcomes. There are several benefits and role of Educational Technology on an educational system. It is intended to improve education for the 21st Century learner. Its impact on schooling has been tremendous; advancing how students learn, how teachers teach and how efficiently and effectively educational services can be delivered. In this age also instructional media and educational technology play significant roles in addressing learning challenges and improving educational outcomes for 21st Century. In Rosen and Wolf (2011), it is pointed out that past researches show that if appropriately implemented especially in student-centred approach, technology-rich environments can move effectively promote educational goals such as; learning motivation, teamwork and higher order thinking skills in comparison with traditional teaching and learning.

Instructional media and educational technology enhance learners understanding, visual and interactive instructional resources help learners understand abstract artistic concepts more effectively. Educational Technology makes it possible for learners to be exposed to variety of ways to learning. In the Wikipedia Free Encyclopedia (2014), it is stated that Educational Technology offers more opportunities for extended learning with the internet. For instance, students can access course materials at home and engage with numerous online resources available to them using the computer. With the internet, they can conduct researches and also engaged actively in the learning process through interactive activities and collaborative projects.

Instructional media cater to visual, auditory, and kinesthetic learners, thereby improving comprehension and retentions. Digital technologies provide learners with unlimited access to educational resources, online libraries, tutorials, and artistic references. One thing which the digital age has brought into the society is the multimedia technological devices such as mobile phones, video and audio conferencing (teleconference) etc. used for social networking. A study carried out by the National school Boards Association (2007) in Wikipedia Free Encyclopedia (2014) indicated social networking by students encourage collaboration and engagement while it is helping the teachers who are meaningfully trying to find ways to involve every student in something that is personally engaging. For the teachers, social network provides professional

development by introducing students to discovery of the learning potentials for themselves, finding other educators who are using technologies in the classroom and then connecting with those who automatically provide a virtual support. This helps to bridge the gaps in learning. According to Coiro and Dobler (2007) in Wikipedia (2014), we live in an age of digital technology where information is available any time. Educational Technology has made possible online real-time application. Websites are equally used in learning process as assignments and homework, test and examination are posted in websites. This no doubt will even help to curb examination malpractice. When everybody stays glued to own computer during tests and examination, there will be no time to copy on pieces of paper or laps.

Challenges Associated with the Use of Instructional Media and Educational Technology

Notwithstanding the enormous benefits of instructional media and educational technology in improving teaching effectiveness and learning outcomes, several challenges continue to hinder their effective utilization in educational institutions. The integration of technology into education requires adequate infrastructure, financial resources, technical support, and professional competence. However, many schools, particularly in developing countries, experience numerous obstacles that limit the successful implementation of instructional media and educational technology tools. According to Bond, Bedenlier, Marín, and Hande (2021), technological integration in education is often constrained by infrastructural deficiencies, inadequate training, and limited access to digital resources.

One of the major challenges is inadequate funding. The acquisition, maintenance, and upgrading of instructional media and educational technology tools require substantial financial investment. Many educational institutions operate under limited budgets, making it difficult to provide modern technological facilities needed for effective teaching and learning. Insufficient funding also affects the provision of technical support services and professional development programmes for teachers. According to Adarkwah (2021), inadequate financial resources significantly impede the implementation and sustainability of technology-enhanced learning initiatives in educational institutions. Poor internet connectivity remains another major challenge affecting the utilization of educational technology. Effective use of online learning platforms, digital libraries, virtual classrooms, and multimedia resources depends on reliable internet access. However, unstable network services and low internet bandwidth often disrupt teaching and learning activities, thereby reducing the effectiveness of technology-based instruction. During and after the COVID-19 pandemic, researchers observed that poor internet connectivity was among the most frequently reported barriers to digital learning worldwide (Adarkwah, 2021).

Limited access to technological devices also hinders the successful integration of instructional media and educational technology. Many schools lack adequate computers, tablets, projectors, smart boards, and other digital devices required for technology-supported learning. As a result, teachers and students are unable to fully utilize digital resources and innovative instructional strategies. Bond, Bedenlier, Marín, and Hande (2021) noted that unequal access to digital devices continues to widen educational disparities among learners. Irregular electricity supply constitutes another significant challenge, particularly in developing countries. Most instructional technologies require a stable power supply for effective operation. Frequent power outages disrupt classroom activities, damage technological equipment, and discourage educators from relying on

technology-based instructional methods. Without reliable electricity, the benefits associated with instructional media and educational technology cannot be fully realized.

Insufficient teacher training is another obstacle to the effective utilization of instructional media and educational technology. Teachers play a crucial role in integrating technology into classroom instruction; however, many lack the necessary digital competencies and pedagogical skills required for effective implementation. According to Trust and Whalen (2020), continuous professional development is essential for equipping teachers with the knowledge and skills needed to effectively utilize educational technologies in diverse learning environments. The high cost of technological equipment and software further limits the adoption of educational technology. Educational institutions are often required to invest heavily in hardware, software licenses, maintenance services, and system upgrades. These expenses can be overwhelming, particularly for schools operating in resource-constrained environments. Consequently, many institutions struggle to acquire and sustain modern technological resources needed for effective instruction.

Resistance to technological change also presents a challenge to technology integration in education. Some teachers and school administrators may be reluctant to adopt new technologies due to limited technological skills, fear of failure, concerns about increased workload, or preference for traditional teaching methods. Such resistance often slows the implementation of innovative instructional practices and reduces the effectiveness of technology integration efforts. According to Trust and Whalen (2020), educators' attitudes and readiness significantly influence the successful adoption of educational technologies. To overcome these challenges, governments, educational institutions, and other stakeholders should prioritize increased funding, improved internet infrastructure, regular teacher training programmes, provision of affordable technological resources, stable electricity supply, and supportive policies that encourage the effective use of instructional media and educational technology in teaching and learning.

Conclusion

The effective teaching and learning of Fine Arts in the twenty-first century require the integration of both instructional media and educational technology tools. These resources enhance creativity, improve learner engagement, facilitate access to information, and support practical skill acquisition. Educational technology aligns with the objectives of the National Policy on Education by promoting quality education, innovation and digital literacy. The application of instructional media and education technology tools in various areas of Fine Arts, including Textile Design, Graphic Design, Ceramics, Art History and Art Education, demonstrates their effectiveness in enhancing creativity, practical skill development, learner engagement, and academic achievement. Their integration into classroom instruction is essential for preparing students to meet the challenges and opportunities of the contemporary creative industry. Although challenges such as inadequate infrastructure and funding persist. The benefits of integrating instructional media and educational technology far outweigh the limitations. Their effective utilization can significantly bridge learning gaps and improve educational outcomes in Fine Arts education and other disciplines.

Suggestions for Integrating Instructional Media and Educational Technology

1. **Provision of adequate technological infrastructure and instructional materials:** The government should provide schools with adequate technological facilities and instructional materials such as computers, projectors, interactive boards, internet facilities, and multimedia resources. The availability of these facilities is essential for the successful integration of instructional media and educational technology into classroom instruction. Adarkwah (2021) noted that access to technological infrastructure significantly influences the effectiveness of technology-enhanced learning and teaching.
2. **Establishment of digital resource centres and computer laboratories.** Educational institutions should establish digital resource centres and well-equipped computer laboratories to facilitate access to digital learning materials and technological tools. These facilities would provide opportunities for students and teachers to develop digital literacy skills, conduct research, and engage in technology-supported learning activities. Such learning environments are crucial for promoting effective technology integration in education.
3. **Incorporation of digital learning activities into the Fine Arts curriculum:** Fine Arts curricula should incorporate digital and technology-based learning activities to expose learners to contemporary artistic practices and technological innovations. The integration of graphic design software, digital drawing applications, animation tools, and multimedia resources into Fine Arts instruction would enhance students' creativity, innovation, and practical competencies. Henriksen, Mishra, and Fisser (2022) observed that technology-integrated curricula promote more engaging and meaningful learning experiences.
4. **Training and retraining of teachers on educational technology utilization:** Government and school authorities should organize regular workshops, seminars, conferences, and professional development programmes aimed at improving teachers' technological and pedagogical competencies. Effective utilization of instructional media and educational technology largely depends on teachers' knowledge and skills. Trust and Whalen (2020) maintained that teachers who receive adequate technology-related training are more confident and effective in integrating technology into classroom instruction.
5. **Allocation of special funds for educational technology:** Special funds should be allocated for the acquisition, maintenance, and upgrading of modern teaching and learning tools. Adequate funding would enable schools to purchase technological equipment, maintain existing facilities, subscribe to educational software, and provide technical support services. Sustainable financial investment is necessary for ensuring the continuous availability and effective utilization of instructional media and educational technology in schools.

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