INTEGRATING INFORMATION TECHNOLOGY IN VISUAL ARTS EDUCATION IN GHANA: KNOWLEDGE, CONCEPTS AND ATTITUDES OF TEACHERS

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Abstract

Visual Arts (VA) studies traditionally promote creative and critical thinking and have always been open to innovative thinking. Despite the innovative potential of technology and the pedagogical benefits of Information and Communication Technology (ICT), Ghanaian VA teachers were hesitant, cautious and distrustful toward integrating ICT into their teaching instruction. This article aims to identify the reasons for Ghanaian teachers' negative attitudes, discuss their rationale from a comparative viewpoint, and suggest solutions based on the original study's findings. The data were collected purposively and categorised and assessed using the qualitative method. It is recommended that a training programme be implemented through relevant seminars and open debates to encourage a more positive attitude towards ICT. The findings show that VA teachers can ensure successful ICT integration in their classes as the primary decision-makers and implementers in education. This research was based on analysing interviews, observation notes and photographic and drawing material.

Keywords: Computer Technology, Information and Communication Technology (ICT), Policy, Pedagogical Approach, E-Learning, Visual Arts Education

Introduction

Teachers globally were required to develop theoretical, practical and pedagogical understandings of essential concepts about VA and ICT usefulness to ensure the success of Information and Communication Technology (ICT) integration in the Visual Arts (VA) classroom since ICT and its peripherals have brought a new dimension in conducting successful art instructions (Mohammad, 1991; Jacka & Ellis, 2010; Tondeur, van Braak, Ertmer, & Ottenbreit-Leftwich, 2017). Consequently, recognising the promising impact of ICT in boosting national economic growth and social development, teachers' technological savvy and dexterity have gained momentum. This impetus incorporates knowledge, creative imagination, flexible views on innovative thinking, especially regarding technology, and open-minded strategies for creation.

The emergence of virtual digital realities and the globally increasing dependence on technology imposes the need for greater awareness about the pedagogical role of access to information and knowledge. Like other education fields, VA teachers have been urged to use the full advantage of ICT.

Eisner (2003) emphasised that as time changes, technology will develop, and the way art teachers respond towards technology must adapt. Similarly, Maljkovic (2017) suggested that a conventional art classroom approach would become pedagogically more contextual and meaningful by embracing ICT. This innovative form of teaching strategies will empower the pedagogy by enhancing perception, creative and critical thinking, and problem-solving in or through creative arts.

In Ghana, we have established a severe gap between traditional approaches and modern technological devices and software applications in teaching and learning creative arts. Tools, such as CorelDraw, Photoshop, Illustrator, I-Pads and digital cameras, could, or should, supplement the traditional teaching methods limited to brushes and paper. Therefore, training teachers and learners about the proper use of technology at schools in primary, secondary and tertiary education is highly recommended.

Aim and Significance of the Study

This article examines the attitudes of Ghanaian teachers towards ICT integration in VA. In this context, this article's aim is threefold:

a. Promote an awareness of the existing educational state of teaching and learning the subject of VA at Ghana senior high schools (SHS) and assess the pedagogical aspect of ICT.
b. Create motivation for planning and implementing the required policies and approaches for ICT integration in VA teaching and learning in the Ghanaian sociocultural context.
c. Assist the primary stakeholders in education, such as school organisations, teacher training institutions and the Ghana Education Service, to successfully implement the necessary reforms in VA instruction at Ghanaian schools.

Through a comparative, global view, this study presents the pedagogical importance of reforms in educating learners and training VA teachers in Ghana in the context of the global advancement in technology and the expert use of production sources, where applicable. However, traditional and strongly supported approaches in VA teaching and learning interaction in Ghana should be respected. In this context, the study's results might offer the Ghana education service a fair way to integrate the familiar with the innovative unknown. Therefore, through their decisions, the education authorities can demonstrate publicly to Ghanaians their respect towards the human aspect of pedagogy and their determination to keep pace with global technological advancements.

Methodology

This study applied the qualitative approach guided by interpretivism as the most suitable theoretical paradigm for investigation.

Epistemologically, this approach has interacted well with the research's theoretical framework, which, based on symbolic interactionism, could move easily from theory to data and from data to theory. Furthermore, it has helped to understand how individuals interact with their environment and interpret and give meaning to surrounding objects, concepts and behaviours.

The data collection includes interviews, observation field notes and artwork photos. For the sake of objectivity, the research data have been critically analysed from two viewpoints: technological and traditional. A descriptive case study research design was employed to assess the role of ICT in VA education in Ghana because it offers broad and diverse data collection methods and analytical techniques.

The study was limited to four SHS in the Akwapim (Eastern Region of Ghana) that offers VA and has up to three levels, i.e., first, second, and third years. For ethical reasons, the names of the four selected schools are not disclosed but are defined as follows:

- Senior High School A – Category a
- Senior High School B – Category b
- Senior High Technical School C – Category c
- Senior High School D – Category d

In line with this classification, the interviewed teachers are presented as T1A/2B, T1B/2B, T1C/2C, and T1D/2D. The qualitative method was adopted to gather and analyse the required data led by semi-structured interviews (Waters-Adams, 2006; Sambo, 2008). This approach allows a better insight into the research issue by testing the underpinning supporting theory in practice and by sharpening the research focus on a specific point of interest (Maree, 2016, p. 60), and yet, conscious of the bigger picture (Terre Blanche, Durrheim and Painter, 2006). Four schools were purposively selected for this study, all situated in the same district but under different categories, A, B, C, and D, as prescribed by the Ghana Education Service Placement of Schools System. According to Stone-Romero (2002, pp. 80-98), for a meticulous and in-depth analysis, the purposive sampling method is most effective if the researcher keeps the selected data as close as possible to the central issues being studied during data collection.

Data Analysis

In this study, data from photographs of learners' sourcebooks and artworks were analysed to illustrate and support responses to the research questions. The benefits, challenges, and issues related to the use of technology in visual arts classes were identified and examined. The recorded data were transcribed, summarised, and organised into categories and sub-categories. Quotations were used to reflect teachers' experiences with technology in their own terms.

Both inductive and deductive coding methods were employed to analyse data from in-depth interviews with eight teachers. According to Soiferman (2010), inductive coding involves discovering patterns and themes directly from raw data, while deductive coding starts with pre-existing categories based on the research question and theoretical framework, applying these predetermined codes to the data.

Initially, interviews were transcribed and coded using a deductive approach, focusing on teachers' motivations for using ICT, their experiences, and their perspectives on integrating ICT into the visual arts classroom. This was followed by inductive coding, which allowed themes and patterns to emerge from the data.

A codebook was developed based on the research question and theoretical framework, including a priori codes related to ICT use, personal experiences, and the integration of traditional and digital methods. Deductive coding was applied to the transcriptions, categorising text segments according to these pre-determined codes.

As coding progressed, new patterns and themes emerged inductively. For instance, many teachers reported feeling overwhelmed by ICT integration or valued peer support. The codes were refined for consistency, revised as necessary, and new codes were introduced where appropriate. The final set of codes included both a priori codes and those that emerged inductively.

Problem Statement

A recent report has revealed that the ICT's full potential cannot be experienced in sub-Saharan Africa due to insufficient development of connectivity infrastructures, crucial for technology-depending human resources development. On ICT use, from a comparative viewpoint, while the developed countries are keeping their pace synchronous with the fast development of technology, sub-Saharan Africa is lagging due to poor quality services, according to the Global ICT Chart Report (The Guardian, April 2012, p. 6). Among countries in the African continent, Mauritius, South Africa, Rwanda, Botswana, and Kenya were ranked 53rd, 71st, 82nd, 89th, and 93rd place, respectively, and Ghana was ranked 112th. Furthermore, the report indicated that African countries suffer severe shortcomings in all components of the ICT index. These range from poor connectivity caused by being too expensive for the available national budget yet poor quality ICT infrastructure to very low levels of basic skills availability; hence, a weak framework for technology to grow and develop to its full potential.

This report illustrates most eloquently the need for suitable educational reforms in Ghana. From a comparative viewpoint, closest to the Ghanaian state of using ICT in education are the meticulous and continuous studies on the Malaysian VA education situation realised first by Rahmat (2014).

The author questioned how ready the present and future Malaysian teachers are to embrace changes based on technology and become agents of innovation themselves. Shortly after, Rahmat and Au (2015) discussed the significant role ICT could play in VA education if teachers adapt it to their instruction approaches. Therefore, the researchers stress the importance of teachers' professional development through relevant courses to overrule their negative perceptions of integration. Later, Rahmat and Au (2017, pp. 310-317) questioned the readiness of Malaysian teachers to integrate technology into their teaching and learning art classrooms.

In our study's framework, as several factors have militated against using ICT, the need for proper awareness and assessment of the causes inhibiting technological advancements in VA instruction should be included in the authorities' agenda. Once these factors are prioritised and solved accordingly, direct involvement of the Ghana Education Service will be required to ensure that their vision and mission are successfully materialised. Therefore, the primary problems to be analysed refer to the lack of funding to support the purchase of the required technology and the training of teachers to adopt ICTs as teaching tools in VA instruction. Given the importance of these problems and the reports, this article examines

a. The existing funding and spending agents, and
b. The Ghanaian teachers' knowledge, beliefs and attitudes toward integrating ICT into their teaching and learning interactive process.

Consequently, the following research questions will be addressed to support the aims:

I. What are the current Ghanaian educational policies regarding the use of ICT in education, and how do they apply to Visual Arts (VA) instruction?
II. How familiar are teachers with integrating ICT into VA instruction, and what is their understanding of its pedagogical role?
III. What are the professional rationales behind teachers' beliefs, views, and attitudes towards ICT integration in VA instruction?
IV. What level of pedagogical ICT knowledge do VA teachers possess, and how does it impact their teaching practices?

Ghanaian Policies on Using ICT in Education

Since the early 1990s, Ghanaian education stakeholders have been concerned about how computers are used in schools and their role in learning (Boakye & Banini, 2008, p. 2). At the beginning of the millennium, Ghanaian education authorities embarked on several projects introducing ICT at the primary and secondary school levels. In line with the nationally implemented Accelerated Development Policy, ICT agents emphasised the need to transform Ghana into an information-rich, knowledge-based, technology-driven economy and society.

To this end, the Ministry of Education Youth and Sports and the Ghana Education Service (MOE & GES, 2002) proposed that to integrate ICT into schools, the following requisites should be met.

a. Determine the type of ICT needed for teaching and administration.
b. Include it as a learning tool in the school curriculum at all levels.
c. Provide tools and means of standardising them in all schools.
d. Ensure that ICT literacy skills and training for teachers and learners are achieved before the end of each education level.

In Ghana, targeting the development of a uniform education for all SHS, rural and urban, pedagogical instruction applies the same curriculum following the same syllabus and guidelines. Although the applied strategies are guided by an unchallenged use of manuals and textbooks, teachers' approaches vary depending on their professional aptitude levels (Opoku-Asare, 2000; Siaw, 2009). Since, to a great degree, teaching is based on transmitting information by mouth, this way of spreading knowledge connects the communication process pattern with the telling-story model, a worldwide primordial oral tradition willingly adopted by many teachers as a familiar means to pouring in and spreading knowledge (King, 1990). It is undeniable that cultural traditions and traditional moral value systems are valuable in building and preserving collective sociocultural identities; however, they should not obstruct innovative, creative thinking and enhancing knowledge.

Therefore, it is significant that recent years have witnessed studies about the extent to which schools are developing the capacity to integrate ICT into teaching, learning, and school management processes. Assessing the situation, Buabeng-Andoh and Issifu (2015, pp. 1512-1519) remark that Ghanaian teachers' perception of using technology in education in second-cycle institutions has been limited compared to SHS in developed countries. The problem has also been identified in a recent study by Kwakye and Ghartey (2019, p. 163), who stress that "there is not much information on how ICTs are being diffused and used by teachers in Ghanaian schools" compared to the clear and available information on ICT use "in high schools in developed countries". These findings, statements and similar debates about the sociocultural and economic development of countries globally support this study's importance and reliability.

I. Integrating ICT in the VA Classroom

Since ICT has created new opportunities and prospects for development and growth, its role and meaning in VA education have gained momentum. Despite the strong resistance to adopting technology in teaching and learning, the acceptance and application of VA instruction seem inevitable. According to ICT integration supporters, pedagogically, it strengthens the globally targeted learner-centred approach by offering a comprehensive platform where the learner explores knowledge sources and methods and challenging ways to answer questions and solve problems (Hopper, 2016).

Similarly, according to Chou, Chang and Chen (2017), ICT integration into art classrooms will enhance learners' inspirations, critical thinking, and creative skills in a collaborative environment through a professionally controlled and supervised process. Furthermore, according to Rahmat (2014), ICT will facilitate problem-solving, a crucial issue in VA teaching and learning interaction.

As indicated by Rahmat and Au (2017) and confirmed by this study's findings, ICT incorporation in art courses has not yet reached the expected success level despite the proposed integration's positive aspects. The undeniable misconception towards integrating technology among VA teachers, as demonstrated through their approaches in class, is gaining momentum and causes an understandable concern to scholars such as Konak (2018) and Rahmat (2014). A teacher's conceptualised framework is crucial in how their teaching approaches will be guided and realised. Rahmat (2015) stresses the importance of this factor by highlighting how heavily the success of a course depends on its content and applied teaching strategies. Since teachers must play a pivotal role in choosing the best medium and strategy of instruction, they are the determining agents to properly transmit information and best ensure the learners' practices in integrating with ICT.

In his research on the degree of priority art teachers attach to incorporating ICT, Roland (2010) reveals that while in their majority, 44% consider it a moderate priority and 33% regard it as a less crucial matter. From another viewpoint, Coleman and Cramer (2015) indicate that many art teachers who oppose ICT integration into art classrooms justify their objection as a concern about the negative impact of technology on the learners' creative thinking, artistic inspiration, and originality—their personal interpretations in their artworks and forms.

II. **Role of ICT in VA**

Since the 1980s, studies have revealed that due to its innovative and creative nature, educational technology is crucial in teaching and learning arts education globally and in Ghana (Phelps & Maddison, 2008, p. 2, Kwakye & Ghartey, 2019). Interestingly, ICT could assist with sharpening critical views, solving design problems, facilitating decision-making, and providing new opportunities for learning in VA instruction processes compared to the existing and applied ones. Since then, the literature has highlighted the potential role of ICT in education by supporting VA teaching. From his perspective, Long (2001, p. 262) considers the present times exciting, as they offer new possibilities for development and progress in VA education. Similarly, Stankiewicz (2004, p. 88) highlights that ICT presents unique opportunities for supporting creativity and extending VA "beyond clay, crayons and paint".

During fieldwork, the primary author observed how the learners began planning and preparing as they worked through the initial stages of the development process.

The visual arts teachers employed a linear approach that included various informal steps for the learners to follow during their development stages. These steps involved collecting organic elements from nature or retrieving pictures from the internet to use as sources of inspiration, brainstorming ideas or conceptualising, developing drawings, demonstrations by teachers, and class discussions. Learners shared their ideas and received feedback on improving or reworking their final concepts. The teachers guided some learners in enhancing their preliminary sketches using a computer. The following examples demonstrate the impact of ICT integration on learners' artwork. Learners created these drawings and later manipulated them using digital tools and platforms.

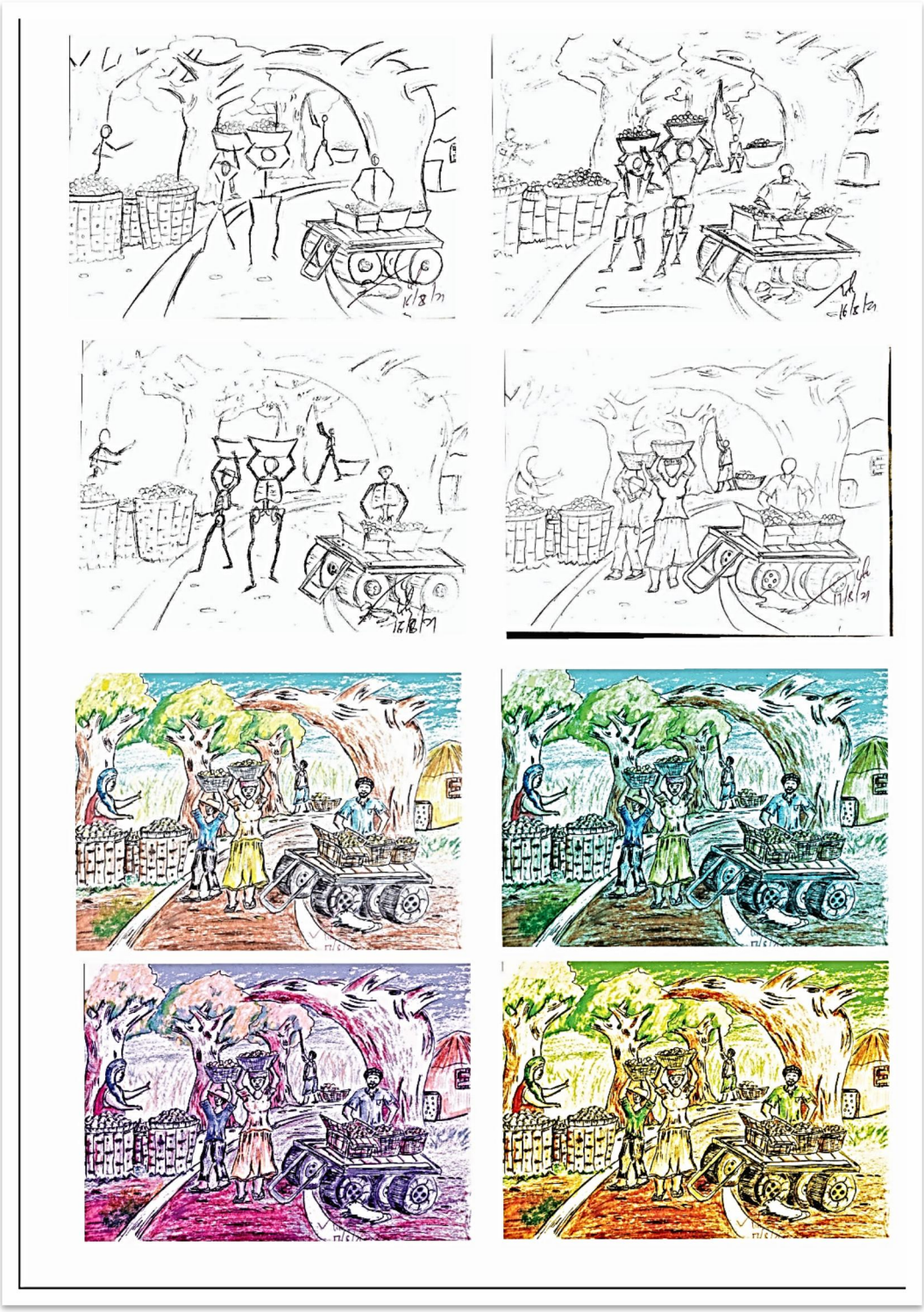

Figure 1: Artwork by a learner in senior high school D

Figure 2: Artwork by another learner in senior high school D

To recap, following the agents in favour of ICT in VA education, the integration opens a broad platform for learners to experiment with critical thinking relevant to their subject matter problem-solving process in a collaborative, reciprocal way. According to Rahmat (2014), ICT integration will provide learners with far closer-to-reality views through variety and comparison, which will broaden their artistic productivity by “simulation, manipulation and creative expression”. Undoubtedly, this perspective insinuates a fascinating process to any young learner by empowering them as mature enough to consider, select, and decide responsibly.

Due to the strong voices in favour of ICT integration in VA instruction, the educational reforms in Ghana, launched in September 2007, have emphasised ICT integration in various subject areas. Becker (2000) cites the need for computers to be seen as problem-solving machines to solve regular curriculum and typical school problems, especially issues concerning learning, instructing, or school administration. Lankshear, Snyder and Green (2000) argue that learning would be more effective and their output enhanced if teachers selected the most appropriate educational technology.

Educational technology has provided opportunities for transforming and enriching the VA education subject area. Adapting ICT tools in VA instruction can radically change pedagogical approaches and improve individual learning outcomes by transforming classroom social practices (Forgasz & Prince, 2001; Goos, 2005; Kwakye & Ghartey, 2019).

Therefore, due to the positive impact on teaching and learning VA (Becta, 2003; Ittigson & Zewe, 2003), teachers in SHS should integrate technology in their teaching to enable learners to understand better the VA concept taught. Apart from promoting the learner-centred pedagogical approach where learners construct their knowledge, meaning, and solution to problems and briefs (Hopper, 2016), technology integration into art classrooms can boost learners' creativity and critical thinking skills by enhancing and facilitating their ways of communicating their artistic ideas (Chou et al., 2017).

Regarding the South African social context of multi-literacies, multiple intelligences and a multi-culture co-existence, Steyn (2019, p.156) writes that "creative thinking and critical thinking should not be regarded as two opposing factors, but rather as two constructive forces that can co-exist, interconnect and function congenially together". The author explains how in South Africa, the subject design "has greatly been assisted by technology", and simultaneously, "the integration of artistic thinking, as creative ability on the one hand, and the continuous newer achievements of technology enriching realisation tools, have brought forth the need for a literacy education, in other words the need to further train concerned educationalists to better understand relative literacies related to both factors, creative thinking and suitable use of technical means." Furthermore, Sujee (2019, pp. 83-84) argues that "Teachers need to become lifelong learners and equip themselves with necessary skills to stay relevant to the needs of the 21st-century learner" and stresses the importance of "technological literacy" as a skill that is "in demand" and "necessary for survival in a digital world", especially in the context of a 21st century, South African "multilingual language classroom". Furthermore, Sujee (2019, p. 84) clarifies that it is "no longer a matter of which technology to use, but how to use the relevant technology in the classroom".

Furthermore, by incorporating ICT in VA education, developing specific skills can be certain, including learning activities, such as writing, communicating, and group interaction through collaborative, critical thinking, and community consciousness, while offering students the necessary aptitude and practical experience in response to the market requirements (Thomas, MacMillan, McColl, Hale & Bond, 1995). Galvez (2018) records numerous scholars who have noted that art education deserves serious consideration and a rightful place in the education curricula due to various accounts regarding its benefits, primarily in critical and rational thinking. From another viewpoint, Hartle (2015), cited by Punzalan (2018) considers art education as one of the primary components of greater heights for academic achievements. More specifically, Punzalan (2018:124) cites Melnick (2011), who associates specific cognitive advantages with art education, such as the ability for higher academic achievement, creativity, and self-expression, while the constant stimulation of the students' brains challenges their imagination and inspiration productively.

VA teachers in Ghana can play a significant role nationally and internationally in education and the learners' achievements, theoretically and practically, due to their capacity to address multiple teaching modes through demonstrations, organising activity-based, participatory/individual projects, or outdoor field trips. They deliver subject contents through notes from various texts and demonstrate artistic creativity by drawing with traditional materials, such as cardboard, whiteboard markers, coloured pencils, objects, crayons, brushes, and coloured inks. Learners study their notes and texts, convey assignments in their drawing books or submit their project works. The examination is twofold: formative (class assignments, exercises, projects, group work, and presentations) and summative (the end-of-semester examination) (TSfVA, 2008).

III. Pedagogical IT Knowledge of VA Teachers

This section presents some of the interviewed teachers' opinions, followed by a discussion based on the study's findings. T1A noted that the VA process (drawing and creative planning) is resourceful and practical; hence, the need to use technology to investigate and play with ideas during this creative exploration process. T1A stated,

"*I allow learners to access internet for information concerning the VA subject because the Internet has a wide range of information for learners to explore".*

Furthermore, T1A asserted that teachers' level of ICT knowledge varies according to the degree of interest rather than learning capacities. T1A indicated that ICT literate teachers relate well and wish to develop illiterates that shy away. He further stated that inborn creativity and qualified instruction proficiency inspire and maintain a teacher's motivation. T1A emphasised that the availability of appropriate tools and materials are essential factors significantly affecting teachers' and learners' motivation and performance in VA in high schools.

T2A interprets the VA drawing and planning process as where learners develop their ideas and materialise their imaginations. Consequently, T2A frequently allows learners to use ICT in their drawing/planning of their artworks. This interviewee also established that designing tools and materials significantly affects learners' motivation and performance in VA in high schools. Therefore, designing tools and materials is essential and indispensable in teaching and learning modern VA. Due to this, it is incumbent that the government and other stakeholders make these tools and materials available for VA learners to enhance their practical skills. Twenty-first-century VA teachers and learners should be able to use such tools with ease.

Regarding the use of technology in the VA teaching and learning classroom, T1B asserted that learners are equipped with skills to fit and meet the target of the computer generation, as it makes work easier, unlike the traditional way of working.

He said that learners are taught to generate ideas from everyday objects and are encouraged to use Pareidolia to generate artistic concepts. Serendipity also plays a vital role in the drawing and planning process. T1B confirmed that he allows learners to use ICT in drawing/planning their final artworks due to the advantages they enjoy from using ICT in the VA drawing process. T1B again made it clear that he uses ICT/computers frequently for teaching purposes. T1B hinted that he allows learners to access the Internet for information concerning the relevant subject.

T2B responded to the question about factors influencing the quality of teaching and learning VA in his school and indicated the following issues:

1. *"Overloaded timetable"*
2. *"Limited periods for practice"*
3. *"Practice of teaching".*

T2B, upon sharing his thought on VA (drawing and planning) processes, explained that the process is good, except that the country does not see its importance. This respondent does not teach learners to use ICT in their final artwork drawing/planning because the West African Examinations Council does not acknowledge such in their final practical works. T2B further emphasised that learners are always excited when they see IT-related tools in the classroom. The teacher revealed that he uses ICT/computer daily to enhance teaching and learning. According to T2B, it is not challenging to integrate ICT into VA teaching because of the existing familiarity of the youth with sophisticated phones. Therefore, concerning his subject, he allows learners to access information on the Internet as he wants them to know that all the "relevant" information "they need" can be found on the Internet.

The quality of teaching and learning VA, according to T1C, is influenced by teaching materials and tools and constantly practising ideas and knowledge. The interviewee interpreted VA (drawing and planning) process as accentuated below:

"Drawing form, the basis of VA course. I encourage students to draw anything that comes to mind. By drawing constantly, we are able to build the various processes together".

However, the interviewee does not allow learners to use ICT in drawing/planning their final artworks frequently, as the devices are woefully inadequate for individual work.

T2C interpreted using technology in the VA teaching and learning classroom as follows:

"The use of technology in teaching VA would have been the best. It is the talk of the day in the world. So, if our students experience it whiles in school, they will also use it when they are out there in the world".

Regarding factors influencing the quality of teaching and learning VA in the interviewee's school, he hinted that,

"In my school, we have competent teachers teaching the subject. There are about 13 teachers in the VA department. We are all united, so where I fall short other teachers come in and assist, and this makes the work easy".

T2C normally asks his learners to go through the development process of an idea as follows. He guides them to pick an object from their environment and on the Internet and build upon it. According to T2C, this helps them to develop a unique work structure. He said that through this process, he allows learners to use ICT in drawing/planning their final artworks. Furthermore, to access information in class, as he explained, learners often come to him asking to use his mobile phone for various search engines, such as Google. According to T2C, this approach strengthens the communication between him and the learners. This teacher uses ICT for quality instruction purposes but also refers to his need for more ICT devices, such as laptops, to enhance teaching and learning processes because the teacher gives them research work to help build them for the world. T2C states that there are many challenges regarding new designs that learners, as future citizens, should know. Accentuating how T2C approaches his ICT learning, he stated:

"I also, from time to time, upgrade myself in order to catch up with the moving trends in the world. I now know how to use Photoshop, Corel Draw applications".

In an interview on how often he uses technology for teaching and learning in the VA classroom, T1D explained:

"I use technology when I am teaching the practical aspect of the VA subject. Again because of the large class size the use of projector is assisting me in the teaching of the VA subject".

Accentuating the confidence level in using technology in teaching VA, T1D hinted that:

"*The use of technology assists me in teaching the VA subject because with it, I talk less and also students experience what I teach. I always use my mobile phone so in teaching with it, it becomes simple"*.

T1D interpreted using technology in VA teaching and learning classroom as follows:

"We live in an era where technology is ubiquitous, and learners are accustomed to using it, so I believe I must incorporate technology into my teaching. I believe that teaching the VA subject requires time and patience as learners begin to understand the concept of the art piece over time."

T1D uses ICT for teaching because his school currently has Wi-Fi connectivity that he uses for research. Again, the interviewee uses a pen drive, a computer, and a projector in teaching. However, he uses ICT when necessary, as some topics in the syllabus do not require ICT. All explanations given by the interviewee indicate that he uses ICT for teaching.

According to the interviewee, integrating ICT into teaching VA is not challenging because he has knowledge of using ICT devices, and learners have ICT devices in their houses. One example of such a device is the broad and handy use of mobile phones. He emphasised that the school allows learners to access the Internet for information concerning VA while in the computer lab to open them to advance knowledge in their subject area. One search engine used is Google chrome. T1D emphasised that the VA department currently boasts a projector and a laptop by which the department can access relevant information on Google from the school. On teachers' approach to their ICT learning, T1D said:

"Based on my syllabus I use the Internet to research and come out with the best methods of handling some topics. I also watch several YouTube videos on various topics."

In an interview with another Senior High School D educationalist on how to interpret using technology in the VA teaching and learning classroom, T2D asserted:

"We are in the era where the use of technology abounds, and students are familiar with the use of technology so I think I must also use technology in my teaching".

The interviewee emphasised that he sees teaching VA as needing time and patience. With time, he said, learners will understand the concept of the artwork using technology.

Based on the above indicative responses, the research has shown that the interviewed VA teachers, depending on their familiarity with the ICT, maintain confident mindsets and positive stances towards ICT incorporation into VA classrooms. On pedagogical approaches, the teachers indicated that technologically well-resourced studios and workshops contribute to well-prepared learners, while a conducive learning environment influences the quality of teaching and learning VA. According to the findings, two professionally crucial factors came to the fore. First, an encouraging viewpoint develops towards ICT as an innovative agent if teachers are accordingly trained. Second, Ghanaian VA teachers maintain genuine concerns for their learners' educational needs professionally and pedagogically. As per Tondeur et al., 2017 and Lawrence and Tar (2018), it is crucial for teachers, as direct education agents, to have positive attitudes and beliefs regarding educational changes and pedagogical reforms.

Conclusions

This study analysed the pedagogical approaches that VA teachers apply to engage learners effectively in the learning process. Some teachers have the appropriate resources and skills to meet their learners' needs beyond academic instruction. Furthermore, it has been demonstrated that ICT in VA contributes to learners' success. Therefore, to build a healthy teacher–learner interactive relationship, teachers should be well-equipped with the necessary skills and tools to motivate their learners to use ICT tools in their VA instruction classes.

Teachers in Ghana avoid the ICT application in VA education due to limited knowledge of its competencies regarding possibilities and functions. Furthermore, they do not engage in collaborative work online with learners nor attend virtual post-graduate educational courses. The teachers do not use the full potential of ICT in their instruction process but apply ICT frequently as a lesson delivery means, especially in delivering instructional content—especially among teachers with more than 15 to 25 years of experience in classroom teaching. For these teachers, accepting new ICT understandably becomes a challenge too serious to overcome due to fear of exposing their limited empirical knowledge and professional self-esteem to open criticism.

Recommendations

Creating more awareness of the importance of ICT in teaching and learning in Ghana is crucial, as it might inform all concerned participants in organising workshops or training sessions to train VA teachers on how to include ICT in their subject matter. Secondly, it is recommended that most art teachers should be well-trained in ICT skills to instruct their educational subject matter and extend their art knowledge to learners using modern technologies. For the successful implementation of ICT, VA teachers should be given full access to ICT tools. Third, VA teachers must collaborate to develop research projects supported by technology, scientific posts based on scientific articles, publication of content in digital repositories, and share the content with other universities abroad. Finally, most VA teachers should have appropriate knowledge of ICT competencies in the subject to teach their pedagogical content and spread their art to a broader audience using modern technologies.

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