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Constructivist Pedagogy in the Visual Art Education: Implementing The 7E Model for Creative Learning

Solomon Boateng[1], Solomon Kwarteng[2]*
1. Department of Visual and Industrial Art, Sunyani Technical University, Sunyani, Ghana
Sunyani Technical University, Sunyani, Ghana, Solomon.boateng@stu.edu.gh
2. Department of Communication Design, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
* E-mail of the corresponding author: solomonykwarteng@yahoo.com | skwarteng50@st.knust.edu.gh

Abstract
This conceptual study examines the application of constructivist pedagogy in visual art classrooms through the lens of the 7E Instructional Model. Rooted in constructivist learning theory, the 7E model emphasises student-centred and enquiry-based learning as a pathway to foster creative development, critical thinking, and artistic expression, beginning with learners lived experiences. The framework structures teaching and learning into seven phases: *Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend*. Although constructivist pedagogy and its applications have been extensively researched in the fields of science, design, and mathematics education, there is a noticeable gap in the literature regarding its systematic application in visual arts classrooms. Drawing on the current literature and practical illustrations, this paper discusses the theoretical underpinning of constructivism, outlines the key components of the 7E model, and explores its potential for promoting creative learning and artistic development.
Keywords: Constructivist pedagogy, Visual art education, 7E instruction model, Student-centred learning, inquiry-based learning, Creative learning
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Introduction

Visual art education plays a crucial role in fostering creativity, critical thinking, and self-expression among students. According to Swapp (2016), visual art education helps students develop fundamental skills, such as reading and writing, which are essential for everyday life. Among the many benefits of teaching art are increased self-confidence and self-awareness, improved communication skills, and enhanced cognitive abilities. In the Ghanaian context, visual art is also linked to vocational skills and the creative industries, making the pedagogy of art classrooms vital to personal growth and national development.

Koranteng et al. (2020) identified a growing preference for student-centred learning techniques that enhance the quality of student engagement and experiential learning. Constructivist theories posit that knowledge is best gained through lived experience and constructed through daily activities. In such classrooms, prior knowledge becomes the foundation for new understanding, and learners engage in enquiry, negotiation, and reflection. For visual art education, this orientation is particularly vital because creative practice thrives on connecting new techniques with personal and lived experience.

Within this pedagogical landscape, learning cycle models have been proposed as practical tools for implementing constructivist principles. From the early three-phase cycles (Karplus & Thier, 1967) to the more widely adopted 5E model (Bybee et al., 1989), these frameworks structure teaching around enquiry and exploration. Eisenkraft's (2003) extension of the 7E model introduced the additional phases of *Elicit* and *Extend*, offering a more comprehensive sequence for scaffolding knowledge and skills. While studies have documented the application of such models in science and mathematics general classrooms, there is limited work examining their potential in visual art education. Addressing this gap, the present study considers how the 7E framework can be adapted to senior high school visual art classrooms to foster creativity, critical thinking and reflective practice.

Learning Cycles Models

Several learning cycle models have been developed to support the effective implementation of the constructivist paradigm in education. Among them are the 3-Phase model developed by Karplus and Thier (1967), the 5E model (BSCS, 1987), and the 7E model (Eisenkraft, 2003). The 7E Model consists of seven stages: Elicit,

Engage, Explore, Explain, Elaborate, Evaluate, and Extend, each designed to scaffold learning and promote understanding and meaningful enquiry for both teachers and learners.

Rationale for the 7E Model

The authors chose this model because it provides instructors with an all-inclusive framework for creating engaging lessons that enhance creativity, critical thinking, and creative expression, while accommodating a range of learning styles and abilities (Adak, 2017). It encourages instructors to engage meaningfully with students to enhance classroom interaction while positioning the learner at the centre of learning. Furthermore, it encourages insightful learning and teaches students to think critically and evaluate their learning.

Purpose of the Study

Rahman and Chavan (2022) conducted a conceptual study on the application of the 7E model in teaching and learning within a general context, and they concluded that the model offer significant benefits for both teachers and students. Building on this insight, this study conceptualises the model's application in the visual arts classroom at the senior high school level. Specifically, it situates the 7E model within the theoretical foundations of constructivism and highlights its pedagogical effectiveness in visual arts education. This study seeks to provide insights for practical implementation to enhance classroom teaching and learning.

Aim and Objectives

The main aim of this study was to examine how the 7E learning model, grounded in constructivist theory, can be adapted and implemented in visual art education in senior high schools.

The specific objectives are as follows:

- To discuss the concept, key characteristics, and relevance of constructivism as a pedagogical framework.
- To analyse the structure and phases of the 7E learning model in relation to constructivist pedagogy.

Method of the Study

This study adopts a conceptual approach, drawing upon constructivist learning theory and the 7E instructional model developed by Eisenkraft (2003). Relevant literature on art education, design pedagogy, and assessment was reviewed to examine how constructivist principles have been applied across disciplines and to identify gaps in their use within visual art education in Ghana. The study does not present empirical data; rather, it synthesises theoretical insights and integrates practical classroom illustrations to propose how the 7E framework can enhance teaching and learning in senior high school visual art classrooms.

Theoretical Framework

Constructivist Theory of Learning

In the educational context, constructivism is a learning theory in which individuals construct and reconstruct their understanding of the world based on their own experiences and recollection of those experiences. Tomljenović and Vorkapić (2020) emphasised that during this process, new insights are compared with previous experiences and ideas, whereby old beliefs may be altered or new information may be dismissed as being irrelevant. Constructivism is rooted in the works of Jean Piaget (cognitive constructivism) and Lev Vygotsky (social constructivism) and has influenced pedagogies across diverse disciplines (Jonassen 1991). UCBerkeley (2024) further explains that constructivism hinges on the idea that learners actively create their knowledge and that reality is determined by their experiences. In practice, learners use their previous knowledge as a foundation and build on it by learning new information.

The types of Constructivism

To integrate this paradigm, educators can draw on several constructivist approaches. WGU.edu (2020) identified three forms of constructivism:

Cognitive constructivism

According to cognitive constructivism, learning should be aligned with the cognitive development stage of the learner. Instruction is most effective when it links prior knowledge to new experiences, enabling learners to reorganise and adapt their mental structures (Kalina & Powell, 2019). Cognitive constructivism is rooted in Jean Piaget's research on children's cognitive development

Social Constructivism
Lev Vygotsky is the author of social constructivism, which is closely related to cognitive constructivism but includes peer and societal impact. Learners construct knowledge through interactions with their peers, teachers, and society at large. Krapse (1999) noted that social constructivism emphasises how learning is a collaborative process.

Radical constructivism
This theory was developed by von Glasersfeld in 1974. According to him, it focuses on the idea that learners and the knowledge they construct tell us nothing but help us to function in our environment. From this perspective, knowledge cannot be seen as an objective reflection of reality, but rather, it is valued for its utility in helping learners function within their social settings.

Principles of Constructivism
Constructivism has some distinctive components and tenets that influence its functioning and application to students. They include

Active Learning: Hands-on, enquiry-driven learning processes are essential for fostering a deep understanding and critical thinking skills in learners. These approaches encourage students to actively engage with the subject matter, moving beyond the passive reception of information to become active participants in their learning. Through exploration and experimentation, learners develop the ability to formulate questions, design investigations, and draw conclusions based on evidence, mirroring scientific methods and real-world problem-solving processes (Bruner, 1996).

Knowledge Construction: According to Piaget's framework, individuals construct mental representations of the world through their experiences and interactions with the environment. As new information is encountered, it is either assimilated into existing cognitive schemas or leads to the accommodation of these schemas to incorporate novel concepts (Piaget, 1972).

Social Interaction: Vygotsky's sociocultural theory emphasises the critical role of social interaction in cognitive development. The concept of scaffolding, derived from this theory, involves providing temporary support to learners as they acquire new skills and knowledge through social interaction. This support is gradually reduced as the learner becomes more proficient, allowing them to internalise the learning process and eventually perform tasks independently. In educational settings, scaffolding can take various forms, such as guided discussions, modelling, and collaborative problem solving (Vygotsky, 1978).

Contextual Learning: Knowledge acquisition becomes more meaningful and effective when it is contextualised within real-world scenarios, personal experiences, and cultural frameworks. This approach, known as situated learning, allows learners to connect abstract concepts to tangible situations, making information more relatable and easier to understand. When knowledge is anchored in familiar contexts, individuals can draw upon their existing understanding and experiences, facilitating a deeper and more lasting grasp of new information (Jonassen, 1991).

Reflection and Metacognition: These play crucial roles in the learning process by enabling learners to actively engage with and evaluate their understanding. Through reflection, individuals can examine their experiences, thoughts, and newly acquired knowledge, allowing them to connect concepts and integrate new information into their existing cognitive frameworks. This self-assessment process encourages learners to identify gaps in their understanding, recognise areas of strength, and pinpoint aspects that require further attention or clarification.

Together, these principles create a pedagogical setting, which empowers students to take ownership of their learning and develop a deeper understanding.

The 7E learning cycle model
The 7E model crafted by Eisenkraft (2003) embodies enquiry-centred teaching and learning approaches which are firmly rooted in constructivist theory. This framework serves as a roadmap for educators to design enriching learning experiences for their students. Eisenkraft expanded the 5E model developed by Rodger Bybee and the Biological Sciences Curriculum Study (BSCS) in the 1980s by adding two additional phases: Elicit and Extend. The resulting seven sequential stages of the constructivist-inspired learning cycle are as follows: *elicit, engage, explore, explain, elaborate, evaluate and extend*. Figure 1 is the interative cylce of the Eisenkraft's 7E learning model

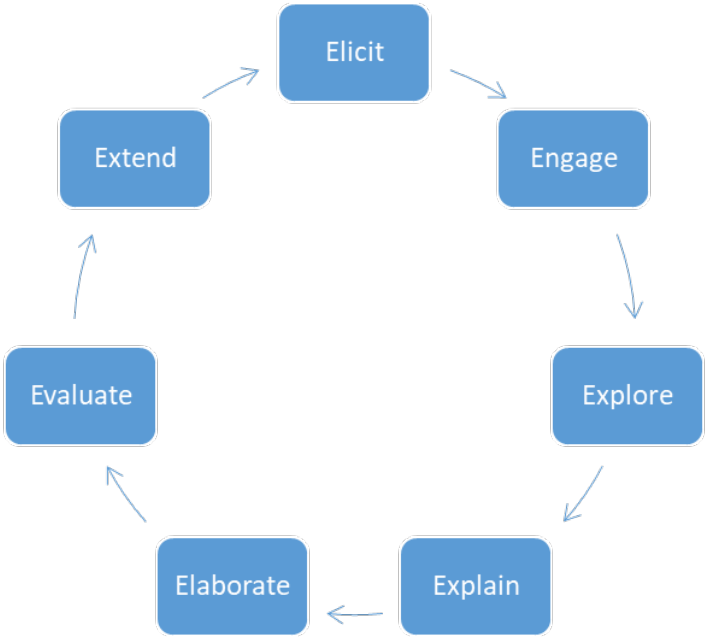

Figure 1. Diagram of the 7E Learning Cycle Model, (Authors construct:2025).

Elicit. The first stage surfaces students' prior knowledge and uncovers potential misconceptions. Teachers may use questioning, KWL charts, incomplete concept maps, and visual prompts to assess learners' understanding. For example, when introducing colour theory, students might be asked:

- What emotions do you associate with warm colours, such as red and orange?
- How does the use of complementary colours create a visual impact in paintings?
- Can you identify the different techniques that artists use to create textures in their work?

By eliciting responses from students, teachers can uncover students' existing knowledge and understanding of colour theory and artistic techniques. This initial assessment sets the stage for tailored instruction and exploration of new concepts in the visual arts domain.

Engage: The goal is to stimulate curiosity and intrinsic motivation. Teachers might present vivid artworks that demonstrate analogous or complementary colour harmony or invite students to mix colours to explore the psychological effects of different combinations. Immersive experiences of this kind not only capture attention but also set the stage for enquiry (Efland, 2002; Harlen & Qualter, 2015). Efland (2002) affirms that by immersing students in an energising visual experience and engaging them in interactive activities, teachers not only arouse curiosity but also motivate students to explore complex activities.

Explore: Students work collaboratively through hands-on activities, such as experimenting with hues, saturation, and value. Small groups can investigate different aspects of colour theory using swatches, paintings, or digital tools, and then share their findings. This process strengthens understanding through peer dialogue while cultivating teamwork and communication skills (Kelley & Knowles, 2016).

Explain: At this stage, learners articulate what they have discovered, while the teacher facilitates the dialogue and offers clarification. Open-ended questioning helps students connect their observations to broader artistic principles, for instance, by explaining primary, secondary, and tertiary colours. Interactive exchanges consolidate knowledge and build a shared vocabulary for visual analysis (Parsons, 2016). Parsons (2016) opines that by linking students' explanations with artistic principles and practical examples, teachers and students gain a holistic understanding of the topic.

Elaborate: Learners refine and extend their knowledge by applying it to new projects. For example, groups may design artworks around specific colour schemes, complementary, analogous, or triadic, and present their results.

Such practices foster a deeper conceptual grasp and demonstrate how theory translates into creative expression (Housen & Yenawine, 2017).

Evaluate: Assessment is continuous and multifaceted, encompassing teacher observations, rubrics, peer critique, and self-reflection. Students might complete short written reflections or present artworks evaluated against agreed-upon criteria for harmony, contrast, and composition. In this sense, evaluation is diagnostic and developmental rather than simply summative (Brookhart, 2013).

Extend: Finally, students apply their learning to real-world contexts, thereby reinforcing transferability. A class project, such as designing posters on environmental awareness, allows students to experiment with colour psychology while addressing social issues. Sharing this work publicly nurtures responsibility, agency, and the understanding of art as a tool for advocacy

Pedagogical implications and value of the 7E model learning in a Visual Art Classroom

The adoption of the 7E learning cycle in visual arts classrooms presents opportunities for enhancing teaching and learning in secondary schools. It presents a sequential phase which guides teachers in structuring lessons that are both student-centred and enquiry-driven, while giving learners space to explore, reflect, and create (Eisenkraft, 2003). Several advantages emerge in the context of visual art education. Although Rahman and Chavan (2022) highlighted eight advantages of this model based on general usage, this study highlights and explains eight benefits of the model's application in visual art education.

Enhancing instructional efficiency: Starting with an exploration of what students already know allows teachers to anchor new concepts in familiar experiences. This diagnostic step prevents redundancy, reduces confusion, and enables teachers to effectively scaffold learning. Vygotsky's (1978) notion of the *zone of proximal development* is particularly relevant here, as it emphasises the value of linking instruction to learners' prior knowledge to stretch their creative potential.

Supporting formative assessment: A decisive pedagogical strength of the 7E cycle lies in its embedded opportunities for formative assessment. The *Elicit* phase reveals misconceptions early, *Explain* and *Elaborate* provide checkpoints for diagnostic feedback, and *Extend* projects evidence transfer to new contexts. Formative assessment practices in education have been shown to enhance students' learning and engagement in the visual arts.

Promote meaningful conceptual understanding: Contrary to the traditional lecture-mode teaching method applied in senior high schools in developing economies, which promotes rote learning, the 7E model motivates learners to engage with content by experimenting, interacting, and applying it. These approaches nurture deep learning, as students are required to make connections between what they learned in the past and the new ideas they encounter. In visual art classrooms, this method will involve students exploring art theories such as colour harmony not only as a theoretical concept but also as a tool for visual expression.

Building self-confidence: This model encourages instructors to value students' perspectives and interpretations and not focus solely on whether learners provide right or wrong answers. Through this approach, the model nurtures a learning environment that supports individuality. As Moust et al. (2005) argue, environments that validate learners' voices encourage self-belief among learners. This validation will strengthen students' willingness to take risks, experiment with unfamiliar materials, and express themselves boldly.

Developing critical and creative thinking: The 7E framework is structured around questioning, analysis, and extension; thus, it trains students to critically interrogate visual ideas. Perkins (1999) and Sternberg (1997) maintain that this kind of engagement fosters thoughtful and analytical thinking. In the visual art context, this translates into learners who create works and critically analyse every aspect of their work from ideation to final presentation.

Nurtures reflective practice: With the 7E model, students are encouraged to pause, reflect, and reconsider their choices as they move through their learning. This cyclical process mirrors the reflective habits of professional artists and designers, who continuously refine their work. Incorporating reflection into learning not only improves technical skill but also deepens students' understanding of their creative processes.

Enhancing communication skills: Although visual art is based on images, students need verbal skills to explain their choices, justify design strategies, or critique peers' work. The collaborative stages of the 7E model offer

many opportunities for such communication. Rahman and Chavan (2022) highlight that dialogue not only boosts understanding but also supports social and emotional growth, which is especially important in creative education. During the Elicit phase, student are encouraged to reflect regularly on their learning through frequent communication, thus enhancing their communication skills.

Possible Challenges with Implementation

Implementing the 7E learning model effectively requires instructors to possess an understanding of its principles and the ability to adapt them to various learning contexts. Unprepared or unqualified instructors may struggle to navigate the complexities of this approach, potentially leading to ineffective implementation and unfavourable learning outcomes. Large classrooms present an additional challenge, as they limit the instructor's ability to provide individualised attention and engage all students meaningfully (Du Plessis & Letshwene, 2025; Marais, 2016). The time constraints inherent in managing a large group of learners may hinder the thorough exploration of each stage of the 7E model, potentially compromising its effectiveness. Students from low-income backgrounds may face unique obstacles when engaging with the 7E learning model. These students might lack access to necessary resources or technology, or they may come from educational backgrounds that emphasize more traditional, teacher-centered approaches. This can result in initial resistance and difficulty adapting to the more active, inquiry-based nature of the 7E model. Similarly, students learning in a non-native language may experience communication barriers that impede their full participation in discussions, presentations, or collaborative activities central to the model. However, with consistent exposure and practice, these students could gradually develop the language skills and confidence needed to engage more fully with the 7E approach, potentially leading to improved creative learning outcomes.

Conclusion

This conceptual study presented an investigation into the application of the 7E learning model for the constructivist pedagogical approach. The various stages of the model, which are *elicit, engage, explore, explain, elaborate, evaluate, and extend*, can provide a structured framework that promotes a student-centred pedagogical approach (Ali, 2020; Milovanovic & Gero, 2020), because it fosters deep engagement with the subject matter, which is a crucial component for student success in academics (Sam, 2024). Furthermore, the 7E can guide students through inquiry-based stages of learning that promote experimentation and active engagement (Eggen & Kauchak, 2018; Sam, 2024). The 7E model therefore presents a viable pathway to teaching and learning in visual art education. However, the successful implementation involves more than just adopting the model's framework. Teachers require ongoing professional development to tailor the approach to the specific needs of creative practice and to develop lessons that combine artistic freedom with structured enquiry. In such contexts, the 7E framework can serve both as an educational tool and as a catalyst for rethinking visual art education, thereby enhancing student engagement.

This conceptual study lays the groundwork for future research in visual art education, highlighting the need for practical implementation and diverse perspectives. A pilot study with a cohort group is proposed to assess the feasibility of the concepts in a real classroom environment. This initial step would allow researchers to observe how the theoretical framework translates into practice, identify potential challenges, and refine the approach based on real-world feedback from students and educators. Furthermore, the study advocates for a series of investigations involving various study groups with distinct characteristics. This may include examining factors such as cultural background, economic status, and class size, through which researchers can gain more comprehensive understanding of how these variables impact the effectiveness of the 7E model. This multi-phase approach would validate the initial findings and also provide valuable insights into adapting the concepts for diverse educational settings.

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