

# Comparative Examination of Virtual Reality and Picture Making Artworks of students in University of Education, Winneba

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**Abstract:** The study focused on a “comparative analysis of Virtual Reality and Picture making Artworks of students in University of Education, Winneba using the mixed research approach encompassing observation of students’ studio works and administration of questionnaires to twenty five (25) respondents from a population of one hundred (100) from the Department of Art Education in University of Education, Winneba. The sample size of 25 was arrived after theoretical saturation of students whose studio art works were not standard as well as leaving behind students who felt reluctant taking part in the study.

As regards the field observations, the researcher found out that the virtual reality of painting productions by picture making students were either abstract, conscious or emergent whilst concrete and unfolding were the field observations used to examine the ergonomic of media in the form of acrylic and 3D paint, colour, ink, and gouache. With respect to the findings from the questionnaires, 92% strongly agreed there was association between virtual reality and cultures of Ghana whilst 80% respondents strongly agreed virtual reality produced fast and hustle free pictorial artwork than the traditional artwork.

The researcher recommended that Virtual Reality should take the center stage in the teaching and training of students so as to cope with modernity instead of the traditional mode of pictorial drawing. It is also recommended that virtual reality in pictorial creations through studio works should be taught and taken seriously since only 8% of the respondents were familiar and could effectively engage in the exercise without much difficulty.

**Key Words:** Aesthetics, pictorial drawing, virtual reality etc

## I. BACKGROUND TO THE STUDY

It remains an indefatigable fact that practice among Arts Education students in University of Education, Winneba fosters the students’ artificial intelligence and augment their picture making skills, leading to an overall training and development of the head, heart and hands. Artificial intelligence in this context connotes visual reality which offers a sense of presence, driven by pragmatic display that situates the learner in a more immersive learning institution (Marylyn, et al., 2021). In fact, visual reality and picture making artworks remains immersive and Arts Education in general may be especially so (Marylyn et al., 2021).

“Art has been around for thousands of years and throughout the ages has developed in different ways. When we ask, what is art about? What is its role? We enter the world of aesthetics.

Artists have different reasons for making artworks and these are known as aesthetic positions. In view of this, defining art is pretty tricky and it is something debatable. Throughout history, there is just not one agreed upon (Szubielska, Imbir, & Szymanska, pp. 44 2019). Generally, Art is about the expression or application of human creative skill and imagination, typically in a visual form. It builds creativity and lets one think of new and exciting ideas (Szubielska et al., 2019). The researcher agrees with all above assertions, however with alternative opinion that with development of science and technology picture making students need to be educated on other creative skills in creating their artworks.

It must however be noted that the department of art education desire for academic excellence cannot be fully achieved without the enviable support of the entire units such as (Graphic Design, Textiles, Picture Making (painting), Jewellery, Sculpture, Ceramic, Basketry and Fashion). All students under the eight subdivisions before completion carry out independent studio project research as part of the culture of the art department. This laudable culture is in no exception when it comes to students pursuing picture making (painting).

The word “Picture Making” is of Ghanaian coinage or parlance covering all aspects of creative arts on two-dimensional surfaces. Thus painting, drawing, printmaking, collage, mosaic, pyrography, marquetry, illustration and others, all fall under its umbrella. Like most creative disciplines demanding manual reflex skills between the hand and the eye, the act or art of creative art is not just merely daubing paint on a surface. If it were so then even apes would be outstanding artists. Aside from hunting and tool making, picture making (painting) can be considered as the third oldest profession of man since the pre-historic Paleolithic times. As artworks done on walls and canvas has evolved, they also gained sophistication in their usage through different cultures in Ghana presently. Craftsmanship in the handling of materials and methods became a basic requirement in the training art students in the art department of the University of Education, Winneba. Surprisingly, the art department besides instilling basic discipline in learning and teaching of visual art, controlling and handling of difficult media is inculcated as well. The authorities ensure that the skillful mastery of picture making (painting) students are no substitute for imagination, innovation, originality or experimentation. It is a vital factor

in propelling the drive for achieving excellence in the creative act akin to that of an aspiring young boxer at the gym for future challenges in the ring.

The notable problem associated with virtual reality is that there is handful research pertaining to academia and curriculum except the few ones which have focused on art therapy and health related phenomena outside the scope of developing countries arena (Hinz, 2019; Zeevi 2021)

#### *Study Objectives*

The ultimate purpose of the study was to undertake a comparative exploration of virtual reality and picture making artworks in University of Education, Winneba, focusing specifically on the ergonomic creations of students and the aesthetic materials used.

#### *Research Questions*

- What are the studio ergonomic creations of students in University of Education, Winneba?
- What are the aesthetic materials used in virtual reality and picture making artworks by students in University of Education, Winneba?

## II. REVIEW OF EXTANT LITERATURE

This chapter discusses extant literature on virtual reality, picture making and painting and related terms.

The following phenomena shall further be discussed: Virtual Reality and pictorial drawing.

#### *Virtual Reality and Pictorial Drawing*

Innovation of Art and aesthetic making have been an object of Human Computer Interaction (HCI) research since the 1990s. Kongkasuwan *et al.*, (2016) regarded virtual reality as sense-making representations, where artists composed a story concerning them, learn how the digital space and gadgets could depict that story, and ultimately make digital representations that depict an association between the story and the equipment. Expertise or “getting smart,” within the facet of art-production connote knowing the tendency of the materials as regards the objectives of aesthetic design (Marylyn *et al.*, 2021). It is widely claimed that the artist’s expertise and their tools are inextricably corroborated and their aesthetic product is governed by the close associations. Artistic digital equipment and gadgets provoke ideas, questions and themes in artists (Devendorf, 2014). For the purposes of this dissertation, virtual reality is defined as the application of digital artwork and human computer interaction in picture making artworks aimed at aesthetic beautification and an orderly harmonization of output.

There are varied digital technologies meant for arts and aesthetic creations (Marylyn *et al.*, 2021). Again, an artist who also produces digital landscapes, delves on affect in the digital artistic process using a computer to process image and videos (Nam, 2015). Nam (2015) unfolds a meditative attribute which emanates through persistence, intimacy with materials

and contemplation. LaViola *et al.*, (2017) examined the procedures of drawing, digital drawing, digital print, and cut and paste collage and discovered that the haptic engagement with physical materials was pleasurable. Digital work was less enjoyable but resulted in effects that could not be created otherwise (LaViola *et al.*, 2017).

#### *Elements and Principles of Design*

Works of picture making (painting) are unique arrangements of the obvious and the not unintended. In order to understand any artworks, an individual must be willing to go beyond the obvious and examine the not so obvious as well. Find out what to look for; understand the language of art. Art has a language of its own: words that refer to the visual elements, or basic parts, and the principles, the various ways of putting these parts together.

Elements and Principles of design are the most important things to look for in works of art and also the way those works have been designed, or planned (Paczynski, Diment, Hobbs, & Reynolds, (2017). This involves knowing what the elements and principles of design are and how they are used to create artworks.

The elements of art are the basic components, or building blocks: color, value, dot, line, texture, shape, form, and space. Similarly, Artists use the elements of art to express their ideas. These elements are not the media the artist uses; paint or clay or stone, for example but the visual vocabulary used by the artist. The principles of art are the different ways the elements can be used in a work of art: balance, emphasis, harmony, variety, gradation, movement, rhythm, and proportion. There could be comparison with writers who must do more than just select and randomly arrange words if they are to communicate their ideas to others. The elements of art can be compared to words. How writers organize those words is similar to using the principles of art. Writers form phrases, sentences, and paragraphs. Then they must carefully arrange these into meaningful sequences. The words must be organized so that readers can understand and appreciate their ideas.

## III. METHODOLOGY OF RESEARCH

#### *Research Approach and Paradigm*

The mixed research approach is adopted for the study. There are three major research approaches that researchers can draw on to investigate a given research problem. These are quantitative approach, qualitative approach, and mixed-methods approach. Creswell and Creswell (2017) refer to the three major approaches to research as consisting of a continuum and that researchers mostly align their studies to either a quantitative approach or qualitative approach; with the mixed-methods approach in between. However, Bryman and Bell (2015) argue that the choice of a particular research approach is mostly influenced by one’s philosophical assumption underpinning the study and therefore the differences in choice of research approach does not make one approach employed in a study better than the other but only

reflects its suitability to the particular research problem.

The qualitative research approach of the study comprises observation of students’ studio artworks in University of Education, Winneba. Observation of the studio artworks is subsequently analyzed through content analysis. Similarly, the quantitative research approach of the study comprises administration of structured questionnaires on picture making artwork and virtual reality.

*Population, Sample size and Data Collecting Instruments*

The target population was 100 students from the Arts department of University of Education, Winneba-Kumasi. Theoretical saturation was used to sample 25 based on availability of the respondents and quality of studio practice

Primary data in the form of observation and structured questionnaire were used. Questionnaire according to Bryman et al., (2015) is defined as a method of gathering information from respondents about attitudes, knowledge, beliefs and feelings. According to Creswell and Creswell (2017), questionnaire is the best research instrument in mixed research approach since it gathers data from the target audience without any misrepresentation by the researcher. The fact that respondents were anonymous in responding to the instrument also contributed to free expression.

IV. ANALYSIS OF FINDINGS

*Bio Data of Respondents (Research Units)*

Table 1 presents the bio data of the sampled respondents. Of the 25 students selected for the studio works and research, 16 were male students depicting 64% whilst 9 students were females representing 36%. Out of the 16 male students, the highest age was 32 years and the lowest being 24 years with a mean age of 28 years. Similarly, out of the 9 female students, the highest age was 30 years and lowest of 25 years with an average age of 27 years. Some of the students had several studio activities whilst others had just a single studio practice. Those with several studio activities indicated it was borne out of their passion for the program and those with just a single practice mentioned inadequate academic time which needed to be evenly distributed across the semester’s courses. The researcher envisioned that studio practice should be made compulsory for all Visual Arts students with minimum and maximum times so as to inculcate the overall training and development of the students in the form of hands, heart and head. The experiential Artificial Intelligence and or Virtual Reality interviews were carried out whilst with the respondents in their respective studios and denoted by “u”.

Table1 Bio Data Of Participants (Research Units)

ID	Gender	Age	Studio Sessions	Experiential AI Interviews
RU1	M	30	2	U
RU2	F	27	7	U
RU3	F	29	2	U

RU4	F	26	2	U
RU5	M	25	1	U
RU6	M	29	8	U
RU7	M	31	3	U
RU8	M	24	2	U
RU9	M	27	3	U
RU10	M	30	3	U
RU11	M	30	2	U
RU12	M	32	5	U
RU13	F	26	1	U
RU14	M	24	7	U
RU15	F	28	2	U
RU16	F	25	4	U
RU17	M	27	3	U
RU18	M	28	3	U
RU19	M	28	4	U
RU20	F	28	5	U
RU21	F	30	5	U
RU22	F	27	4	U
RU23	M	24	4	U
RU24	M	24	2	U
RU25	M	27	1	U

Source: Author’s Construct, (2022)

*What the students from University of Education, Winneba made: Nuggets and Exploits*

The in-depth inspirations, coupled with the lofty creative skills manifested by the students left the researcher astounded .The students’ paintings of portraits, landscapes, and living things such as horses, dogs etc typified the beauty of Visual Arts. The researcher observed a combination of visual inspirations and other types of inspirations in the form of coloring and poetry. Ru1 put together several colors in his art work to survey the art of coloring. Ru2, Ru3, Ru11 and Ru14 were much inspired in poetry and embedded same into their paintings. For instance, Ru2 painted a landscape depicting ‘Nnam Aba’ just to express her joy for how fisher folks are happy with their bounty catch scenes (Fig. 1a). Ru14 paintings depicting portraits of children and symbolic heroes based on a personal experience and encounters since infancy. Ru3 depicting an eventide scene and decided to include vehicles with very highlights flashes, street lights embodying radiating lightning. Ru11 combines pencils with varied dry pigments and techniques of scribbling in the work. Other students were encouraged by and minimized photographs. For instance, Ru10 used Ru7 as his model in beads mosaic. He pictured an image of role model beside him when he was creating the artwork. Ru4 and Ru12 equally used pictures of birds. Ru13 drew a portrait from mum and his infancy abode and explained its meaning with the researcher, saying “The art

and joy of motherly love make the artist happy and stronger”. Respondents were all beaming uncontrollably as regards their aesthetic exploits and *accomplishments*. Some of them even kept pictures of their art on their smartphones as screen savers and joyously showed same to the researcher (Fig. 4a and 4b).

The researcher solemnized the student’s historic feat by announcing it to other respondents how they performed marvelously in the studio practice.

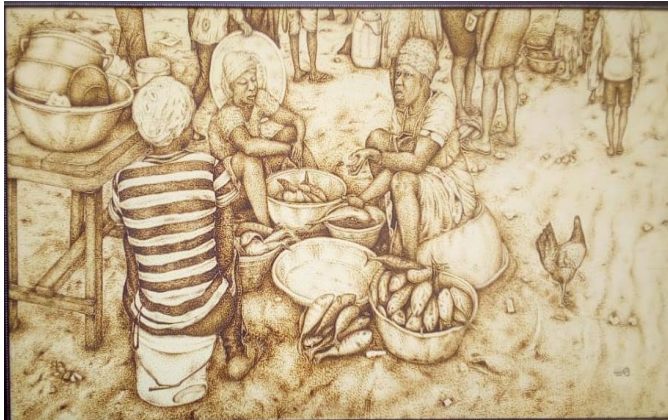


Fig. 1a (fieldwork, 2022)

*Ergonomic materials be it Physical or unfolding*

From table 2, respondents used plethora of gadgets, materials and tools to express their feelings and ideals surrounding their immediate environment. For instance, Ru20 used a pencil to draw explaining that she does more elaborate work and feels comfortable with the use of a pencil. Most students used brushes, watercolor, crayons and pencil colors to make artistic impressions. Similar art tools that the researcher observed included tape, rulers, rollers, pencils and other items such as rocks. Ru6 was more comfortable using tape to draw shapes on the canvas because of the “neat” lines he could attain with the use of tape.

Some students used other methods that represented a facility with physical materials, comprising dripping paint on the canvas (Fig.1b and 1c), throwing paint and creating layers of colors. One aspect that appeared indefatigable was the temporal *unfolding*.



Fig. 1b and 1c (fieldwork, 2019)

Unfolding connotes workable material of physical outlook which progressively changes over time and helps respondents to communicate with the aesthetic materials within the period of the study. A clear example is where Ru25 used ink and colours to create patches. (Fig.2a). He combined the ergonomic materials for an exquisite production of base on his feelings and sense of appreciation of artistic images. Ru6 used coloured pencil and ink on a paper, scribble to depict “Ahoofe Patricia” (Fig. 2b). The artistic skill of producing layers maximizes knowledge of the duration of the paint to dry and the workable kind of intermediate levels of dryness. The researcher observed respondents using a hair dryer to patiently blow their watercolour using a towel or tissue so as to attain the extent of dryness that they sought to achieve.



Fig. 2a (fieldwork, 2022)



Fig. 2b (fieldwork, 2022)

*Comparative Analysis between Virtual Reality and Picture making Artwork*

In picture making, respondents were focused and engaged in hustle and freelance social interconnection. Social interactions enhanced tremendous benefits including situated decisions for tools as well as reflection on various media. However, there was a stark contrast of less social interaction in Virtual Reality.

Art is essentially drifting from traditional or man-made effort to virtual reality and the use of technology. On the comparative analysis between the quality of aesthetic products in virtual reality as against traditional artworks, 20 respondents strongly agreed that virtual reality bestows much quality. This represented 80% whilst 3 respondents representing 12% strongly disagreed and 2 respondents representing 8% were neutral. The findings corroborate with Marylyn et al,(2021) and sharply contrast (Seo et al. 2018).

Table 2: Primary Topics from the Field Observations and Experiential Virtual Artificial Intelligence Interviews

Topic	Field observations	Experiential Virtual Artificial Intelligence interviews
Painting productions by respondents	Exploits and accomplishments	Abstract, Conscious and Emergent
Ergonomic of media	Concrete and unfolding	Acrylic and 3D paint, aluminum foil, Colour, ink, watercolour, gouache, encaustic etc
Processes of Architectural production	Situate, social and reflective	Immersive and physical

Source: Author’s construct, (2022)



**Fig. 3.** Kinds of AI controllers (from left to right): HTC Vive and Oculus Rift (Photo credit: Amber Case, non- commercial 2.0 generic, CC BY-NC 2.0, no variations effected). (fieldwork, 2022)

Table 3 Virtual Reality versus Picture making art work and the Gender impact

Options	Scale	Frequency	Percentage
Virtual Reality produces quality arts work than traditional method?	Strongly Agree	20	80.0
	Strongly Disagree	3	12.0
	Neutral	2	8.0
	Total	25	100
Virtual reality of picture making is significantly	Strongly Agree	23	92.0

related to Ghanaian culture?			
	Strongly Disagree	2	8.0
	Neutral	0	0
	Total	25	100
Aesthetic products in virtual reality are more of intentional than abstract?	Strongly Agree	17	68.0
	Strongly Disagree	3	12.0
	Neutral	5	20.0
	Total	25	100
Aesthetic Products in virtual reality are more of abstract than emergent?	Strongly Agree	19	76.0
	Strongly Disagree	3	12
	Neutral	3	12
	Total	25	100

Source: Author’s construct (2022)

**V. CONCLUSION**

Artistic production remains an indispensable exercise in Art education as it equips learners with pragmatic skills for self-employment and enormous contribution to society. Through virtual reality and students’ studio work, they were able to create aesthetic products in abstract, intentional/realistic and emergent using various aesthetic media like 3D paint, gouache, wide range of colours. Their aesthetic creations were cognizant of their cultural heritage. Virtual Reality art-productions have tremendous exploits, capable of equipping learners with practical skills for self-employment but require much attention and investment for meaningful impact as we are in uncertain times.

**VI. RECOMMENDATIONS**

With regard to the findings and conclusion of the study outlined above, the researcher made the following recommendations quite realistic to students.

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**APPENDIX**

UNIVERSITY OF EDUCATION-WINNEBA  
 COLLEGE OF HUMANITIES AND SOCIAL SCIENCES  
 DEPARTMENT OF CREATIVE ARTS EDUCATION

**Data collection instrument on ” comparative analysis of virtual reality and pictorial creations of Arts Education in University of Education, Winneba ”**

The study is purely for academic purposes and confidentiality of your responses will be strictly ensured.

Respondents are assured of anonymity and confidentiality.

Thank you.

**Virtual Reality versus Traditional Arts work and the Gender Impact**

The appropriate option that corresponds with your answer to the following questions.

Respond with options

1 = Strongly agree

2= Strongly disagree

3 = Neutral

	<b>Options</b>	<b>1</b>	<b>2</b>	<b>3</b>
5	Virtual reality produces quality arts work than traditional method?			
6	Virtual reality of pictorial creations relate to one’s culture?			
7	Aesthetic products in virtual reality are more of intentional than abstract?			
8	Aesthetic products in virtual reality are more of abstract than emergent?			

The study findings may help more students to better understand and appreciate the modernity associated with virtual reality or artificial intelligence in Art education and to better position the choices of courses pursue accordingly, for 21<sup>st</sup> century skills training and development.

Students are thus encouraged to embrace virtual reality studio practice for meaningful impact after their training as we are in uncertain times.