

**WAYS OF KNOWING IN THE VISUAL ARTS: THE IMPERATIVE OF SENSE
PERCEPTION AND THE CREATIVE PROCESS**

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Abstract

The visual arts, as ‘ways of knowing’, contribute to knowledge and the development of society by highlighting the importance of arts and humanities in driving the economy in a world where emphasis is on science and technology. It is important to note that knowledge in the 21st century global diversity is visually-driven, through computers, smart phones and the internet. This makes visual arts knowledge imperative. The visual arts, as visual literacy, rely on sense perception and the creative process. Visual arts consist of the studio practice section which includes drawing, painting, sculpture, printing-making, photography, graphic design, textile and fashion design and ceramics, the discourse sections of art history, art appreciation and criticism and art education. The objective of this paper is to examine how visual arts knowledge, as ways of knowing, is integrated into Bloom’s Educational Taxonomy of Learning, comprising of the cognitive, affective and psychomotor domains and how these domains equip students with intellectual skills, heightened sensibilities and the motor skills necessary for achieving learning outcomes in the visual arts. The research purpose is to show how art constitutes a way of knowing through sense perception and the creative process in drawing and painting. The methodology derives from students’ drawing and painting exercises with research results showing that the students are equipped with visual literacy competences to process different kinds of information as a catalyst for building skills and capacities to fully participate in the public, community and economic life of society. It is concluded that visual arts training is holistic in terms of cognitive functions and the processing of information; and as ways of knowing, arts appreciation should be more broadly taught in schools and universities as part of visual literacy, which is closely linked to digital literacy.

Keywords: Visual arts, Visual literacy, Ways of knowing, Bloom’s taxonomy, Sense perception, Creative process, Art appreciation.

Introduction

Ways of knowing refers to systematic ways of investigating or doing things, providing proof and unified learning in an area of knowledge. In the Fine and Applied Arts Department also

referred to as Visual Arts, students are trained to be able to design through graphic communication, manipulate clay to build forms in ceramics or sculpture, paint on canvas, use various dye substances and chemicals to produce fabrics and learn to cast in bronze, among several other artistic skills. These activities define their peculiar kinds of knowing through perceiving and experiencing which differentiates a sculptor from a graphic designer, a painter from a ceramist, etc. The visual arts consist of two main domains: the studio practice areas including painting, drawing, print-making, sculpture, photography, ceramics, graphics, textile, fashion designs and the discourse areas of art history, art appreciation and criticism and art education, among others. The subsections constitute different ways of knowing in the visual arts as taught and practised in arts departments, especially in the creative processes.

Art is often disdained due to popular but misinformed views that the visual arts only involve manual skills in the use of the hands and less of the brain. Suffice it to state that visual arts education is intricately woven into Bloom's Educational Taxonomy of Learning, which provides cognitive, affective and psychomotor abilities. Visual arts education nurtures and enhances all-round development of these domains. Bloom's taxonomy is used to determine students learning outcomes in all art activities in the studios and discourse areas. The cognitive domain involves intellectual skills of knowing, acquisition of facts about art processes, tools and materials, the affective domain equips students with heightened sensibilities of in-depth emotional responses in valuing and appreciation of arts while the psychomotor domain equips students with skill-based goals in the ability to physically manipulate tools, materials and engage sensory cues to guide motor activities in making arts. By this orientation, arts students are engaged in a climate of intellectual diversity and skill-based endurance which reflects in the works they produce.

Knowing in the Visual Arts and Bloom's Taxonomy of Educational Objectives

Bloom's taxonomy of learning domains was created in 1956 under the leadership of educational psychologist, Dr. Benjamin Bloom. It was designed to promote higher forms of thinking in education in analyzing and evaluating concepts to engage processes, procedures and principles rather than rote learning of merely remembering facts. It is mostly used for designing instruction or learning processes. The committee identified three domains of educational activities of learning: the cognitive - mental skills (knowledge), the affective - growth in feelings or emotional areas (attitude or self) and the psychomotor - manual or physical skills (skills) (Bloom, 1956).

The narrowness of our educational system relies so much on word literacy. The written word had for centuries been considered the superior currency of intellect. It is so pervasive that even in the universities, it perpetuates the axiom "publish or perish". The irony is that it includes one audience whose form of expression is strictly textual and keeps out those whose

form of expression is visual. According to Edwards (2013), this shortchanges other truly valuable capabilities of the human brain, namely: perception, intuition, imagination and creativity. In the visual arts departments, lecturers are expected to publish articles in journals and also to produce art works of good merit and exhibit same in a properly documented catalogue.

Neuroscientists' researches show that the human brain is divided into two cerebral hemispheres alongside its mental functions, each with its own 'way of knowing' and perceiving external reality. Edwards (2013) states the left hemisphere of L-mode is dominated by language function through verbalizing, analyzing and making rational statements based on logic. While the right hemisphere of R-mode function is visual, which enables one see things that exist in space, how parts make up a whole using metaphors, image solutions, and being able to see things in the mind's eye. Arts lecturers are trained to make the necessary shifts in applying the two modes of information processing skills in any given situation, making them essentially 'bilingual' word-literate and visually-literate.

Art is an intellectual and physical activity by which artists explore the infinite possibilities of materials, ideas, techniques and processes to produce unique works. This engages all the domains. However, not all ideas may be best expressed in words as Fraser and Henderson (2008) observe. The non-verbal ways of learning in arts support the learner to express things for which words are inadequate: as such thinking with the hands and head as modes of application remains critical to the aesthetic vision expressed in art. Knowing in the visual arts equips students with the abilities of visual discrimination in dealing with images, objects and symbols, which according to Ausburn (1978) encourage appreciation and comprehension in visual communication. This also equips students with basic skills of visual literacy to be able to organize their ideas in visual forms, use images to convey meanings as well as read images. This is a mode of problem-solving and critical skills development which shapes learners' attitudes, values and lifestyles. These layers of knowing, according to Edwards (2006), are the foundations for who we are, how differently we are, our thoughts, feelings, multisensory perceptions and imaginations.

Ausburn (1978) maintains that we live in an era of visual culture, in which images inundate our environment, whether in a private or public domain, and are powerful in our national and individual consciousness. Visual arts education prepares students to be more resistant to the visual manipulations evident in product advertisements, and to be able to figure out visual relationships in objects and things perceptible to the senses. They are able to make informed judgment on matters of aesthetic intentions and artistic skills. In skills-based goals, students know and act in a sequence of steps in producing art. They recognize their individual abilities

and limitations in the creative act and as such demonstrate the willingness to learn through attending studio classes and doing assignments. They follow instructions and complex skills training which include imitation, trial and error until adequate performance is achieved by practice. In terms of mechanism of basic proficiency in the studios, students are trained to be habitual in their practice which builds confidence and proficiency.

The department expects learning outcomes from students to emphasize creativity based upon highly developed skills. The practical instructions on materials, methods and processes in dealing with motor skills constitute experiential and exploratory ways of knowing. Students learn to give forms to images that arise in their mind's eye, dreams, self-discovery and develop empathy for self-expression. Visual arts education explores the boundaries and overlaps between different areas of knowledge which include mathematics, philosophy and logic and indigenous knowledge. The visual arts education appropriates mathematical tools of golden section, proportion, spatial judgment, planes and patterns. In philosophy and logic, it employs abstractions, capacity to make sense of things, ability to translate mental processes into practical activities. In terms of indigenous knowledge, visual arts students appropriate indigenous materials, tools and techniques into modern methods for creative solutions. Art, as a creative expression and cultural growth in the humanities and sciences, ramifies into other areas of knowledge in terms of the capacity to observe, interpret through drawings, combine functions with aesthetic consciousness, and handle construction and realization of three-dimensional models as evident in engineering, architecture, industrial design and modern technology in general.

In the discourse areas of art history, art appreciation and criticism as well as art education, students are cognitively trained in terms of acquiring appropriate terminologies, comprehension of perceptual skills in reading, spelling, writing and the ability to organize, interpret and analyze components of an artwork. At the affective level, they build awareness in choosing, describing, comparing, valuing and organizing ideas and information through systematic planning in solving problems. Visual arts education covers a lot of common grounds in knowledge and human cognition of thinking, learning and understanding and plays a substantial role in other disciplines. From the point of view of the artist and the audience, visual arts unveil certain truths about the human condition and society in a peculiar way and in a more permanent medium of rocks, stones, bronze, canvas, pottery, iron, etc. which some other areas of knowledge cannot.

Knowing through Sense Perception

The visual arts use the creative model of sense perception by which students are equipped with observation skills in learning to look and see at a deeper level. Learning through sense

perception equips students to catalogue and understand visual elements, recognize images, identify sizes, shapes, forms, colours and position of objects and printed materials. They are able to identify likenesses and differences between specific images, remember differences and observe details in the environment through looking closely at things. They are able to conceive ideas creatively, which can lead to deeper understanding of the human condition, raise moral questions and understand the world better. Sense perception as a way of knowing deals with appreciation of arts by engaging the senses in observing an art piece which may be a sculpture, a painting or drawing. Engagement with art involves an emotional response which heightens the sense of touch and raises philosophical questions about reality and the nature of truth.

Eisner (2008) states that artists do their thinking within the medium in which they work. That visual perception is visual thinking in which feeling or emotion is regarded as separate from reflective thought. According to Robinson (2001), in creative thinking, emotions and rationality usefully coexist. Carney (1998) states that artistic knowledge differs from other forms of knowing in that it is sensorily embodied and inextricably intertwined in temporal, spatial and experiential particularities. It is visual and plays out along the senses. It is a form of knowledge that expresses pragmatic understanding of experience by emphasizing concrete ways of seeing, which begins and ends with concreteness, the look and feel of sensory experience. It also deals with the philosophy of doing, the ability of art learners to translate mental processes into practical activities and establish the connection between conceptions and perceptions.

In the 21st century, education is heavily reliant on visual images through computers, smart phones and the internet. Learners in art are trained to develop the perceptual faculty necessary to deal with the thinking and understanding that go with digital age and visualization, particularly that images are critical to remembering concepts and absorbing information. According to Fiedler (2018) cognition are two different modes of experiencing reality. The perceptual is based on visual experience while the conceptual is arrived at through the process of abstraction which reorders perceptual data. Both are autonomous, and of equal processes. The former deals with what is visible, while the latter deals with whatever can be articulated. For example, one can perceive or view 3 trees but can only mentally conceive 50 trees. Aristotle in *De anima*, Shiffman (2011), maintained that imagination is the intermediary between perception and thought. The perceptions brought in by the five senses are first worked upon by the faculty of imagination. The images so formed are what become the material of intellectual faculty. Art allows for self-expression and imagination, which tap into human emotions for the creation of art and its interpretation by audience.

The Creative Processes as Ways of Knowing

Visual arts training is an embodied way of knowing involving tasks grounded in practice, materials and aesthetic sensibilities. These allow for creative interpretation of reality, personal identity and innovation in the art process. Kress *et al* (1998) observed that as we move to an increasingly visually-dominated culture where students are expected to code and decode complex messages in a variety of media, visual arts education already places its students at advantage as they are able to deal with the delicate balance between the verbal and the visual. The students learn to create by engaging all the faculties of the mind.

The creative process is the application of sense perception in creating works of art by engaging all the faculties of the mind in the use of tools, technical aptitude, processing information and reasoning through visual representations. The creative process develops students' visuo-spatial cognition, which is the capacity to reason, understand and remember the spatial relation among objects. The creative process involves the use of imagination to transcend traditional ideas, rules, patterns, relationships or the like, and to create meaningful new ideas, forms and methods. The creative process enhances visual thinking, the practice of using images/pictures to solve problems, think through issues and communicate clearly. Visual thinking enables students to externalize their internal thinking processes, make them clearer, explicit and actionable. This is a vital skill for developing new ideas, designs and abstract thoughts.

Students in the creative process develop spatial intelligence, one of the eight multiple intelligences theory. Gardner (1999) states that spatial intelligence is a human computational capacity that provides the ability or mental skill to solve spatial problems of navigation, visualization of objects from different angles and space or to notice fine details. The visual spatial intelligence is composed by a set of cognitive abilities, talents and mental skills. It equips students with the ability to imagine movements among parts of an object, on the object itself and to use the mind's eye to conceive things.

Spatial intelligence skills empower students to use drawings and three-dimensional models in problem-solving process, and to develop their capabilities in perceiving the world deeply. As one of the different ways of knowing, learning and processing information at different levels, students who have acquired spatial intelligence skills function well in constructing concepts, creating images, conceptualizing new ideas, and engaging in aesthetics. They are highly experimental, able to visualize the big picture, use technological tools in computer aided designs, animation, desktop publishing, multimedia authoring, and digital imaging,

among several other skills. Eisner (2004:5) observes that “as we learn through arts, we become more qualitatively intelligent”.

The Creative Process and the Constructivist Learning Approach

Teaching and learning in the visual arts go beyond the traditional classroom approach by adopting the constructivist learning approach. According to Kafai & Resnick (1996), learners are consciously engaged in the construction of a product, provide initiative for their own learning experiences by their involvement in studio practice. They are encouraged to be autonomous in ideas and approach; and as such, they are active participants in the knowledge process in terms of making meaning. Arts students construct personal understanding of things based on experiencing things and reflecting on those experiences. By this, visual arts students assume the role of producers rather than consumers of information.

Arts activities in the creative process are social, interactive and dynamically student-centered. This emphasizes collaboration, sharing materials, tools and ideas.

Students develop communication skills as they critique one another’s works and play active roles in judging their own progress. Through creative experimentation, exploration and innovativeness students learn to be proactive and resourceful in the way they learn, take in new information and shape it their own way rather than passively absorbing information. Their points of view play a more empowering role than the lecturer who serves as a guide rather than a controlling figure. Visual arts learning is an active constructive process that is learner-centered. According to Cooper (1993), the learner is an information constructor who creates a subjective representation of an objective reality by bringing in his/her experiences and cultural factors to construct his/her own meanings in the creative process. Students learn to create, explore ideas and take risks with tools and materials by bringing unique individual perspectives to the process of making art through real or imagined courses of action which result in the creative process.

In the studios, students work individually on their subjects and come together as a class to critique one another’s works during evaluation. Research topics may be given individually or in groups where students present their findings in the class. Students embark on fieldtrips in which concepts and ideas discussed in the classroom are fully realized in actual context. The use of slides, audio-visuals, films and photographs are critical to teaching and learning the visual context of arts. These are finalized by class discussions and tutorials. As a way of knowing, the creative process shapes the way students think, feel and act, through making use of verbal and non-verbal conventions such as signs, symbols, and icons. They manipulate tools, understand the characteristics of materials and transform ideas into objects which can

be viewed, felt, heard and understood. They create spatial ideas, learn principles of three-dimensional thinking and decision- making, and develop visual enquiries using laid down processes and procedures. Learners in art develop creative skills that enable them thrive in a multimedia-driven environment through the use of photo-story, movie maker, powerpoint and other accessories. They are able to create images using autoCAD in technology-driven designs.

According to Ocvirk *et al* (2009), elements of art consist of line, shape, value, texture and colour, organized to produce principles of art, utilizing balance, proportion, dominance, movement and economy. Students are taught the elements and principles of art as a foundation to achieve visual order in producing artworks. These are not an end in themselves but a guide to the composition of works of art. They could be used intuitively or subjectively, but usually a blend of intuition and intellect is needed to achieve the desired end. In the creative process, learners create representations in visual form which begin a visual dialogue as a way of understanding what is represented and helping others to understand it. This leads to knowledge of self and others, alternate perceptions, apprehensions of ideas and creative actions, in which students learn to create, innovate, improvise and work together as a group in building a sense of community and relinquishing some aspects of personal identity in order to work among others.

The Creative Process of Drawing, Painting and Problem-Solving

The creative process in all the studio areas is the heartbeat of teaching, learning and assessments in the visual arts. Due to constraint of space, only two studio areas of drawing and painting are briefly discussed here. Drawing and painting are fine motor skills involving the coordination of hand movements and eye synchronization. The eye guides hand movement and provides information on the object to be drawn or painted. Eye and hand coordination is a complex cognitive ability that unites the visual and motor skills as guided by the visual stimulation the eye receives and the interpretation offered by the brain through the right hemisphere of R-mode responsible for processing visual information.

Drawing and painting are facilities for students to express their skills, feelings and thought processes as an alternative reality to the objects drawn or painted, a reality that cannot satisfactorily be expressed by words but through complex, visual, and structural manipulations in the use of the dry media of pencil or colours as in painting. Drawing and painting are global skills. As a way of knowing through sense perception, drawing and painting are media for experiencing, perceiving and expressing.

They are a valuable addition to cognition through their different textures and corporeality which lead to other insights, shifts of focus and appreciation of elements that would not necessarily depend on cognitive enquiry.

Drawing is the foundation for all visual arts skills. In art, an idea is first conceived, then it is put into a sketch or drawing with the simplest materials of a pencil and a paper.

Figure 1: shows a second-year student's drawing made up of composed still-life objects set in front of the class, from which the student drew. The drawing exercise is a form of training in basic drawing in which students learn to draw from observation, making use of drawing concepts such as proportion, use of space, light and shade, and the ability to use the dry media of pencil to depict what they see.

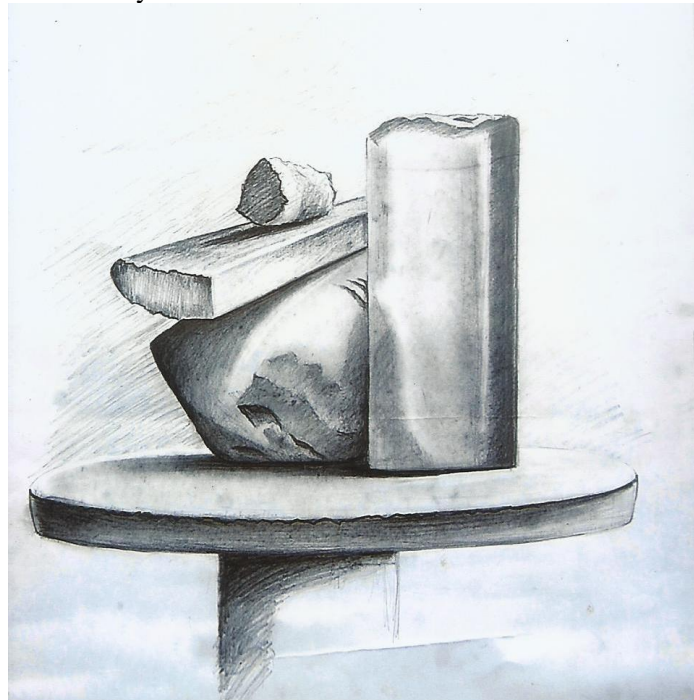


Fig. 1: Still-life Drawing

Painting is working with colours to organize thoughts in a pleasing way. It is a tangible action in colours. In painting, students learn to translate the intricacies of visual or imagined impression to the prosaic terms of masses of colours, lines and tones with the aid of brush or other instruments. Figure 2: shows a year two student's painting as part of the course: introduction to painting. The painting is not focused on any specific subject-matter. It is an

experiment on orchestration of colours, to see if the student can freely mix and apply colours and how the different colours interrelate in a pleasing composition. The painting shows how the student intuitively and intellectually manipulates the paint medium of water-based poster colours in an interesting composition of colours. It also shows the understanding of elements of painting, such as hue, tone and intensity.



Fig.2: Colour Exploration

Drawing and painting enhance students' perceptual skills in the ability to:

- i. Perceive edges (contours of objects)
- ii. Perceive spaces (negative and positive spaces)
- iii. Perceive relationships (perspective and proportion of objects)
- iv. Perceive lights and shadows (shading as in drawing, and tones as in paintings)
- v. Perceive the whole (the gestalt, the thinness of objects)

The above are the five basic seeing skills which, according to Edwards (2013), can be applied to thinking and problem-solving. These skills enable learners to see things differently and to use the mind's eye. The knowledge of visual skills is further useful in solving all kinds of problems in every field of human endeavour, right from solving business or personal problems to enhancing general thinking about the world globally or locally.

The basic visual skills equip students to produce new and unique innovations of social value. They learn to be receptive to all information, whether positive or negative. They also learn

to see clearly and perceive realities. They are able to assess the perceived nature of edges, which may be aesthetic, financial or time. In terms of seeing spaces, they are able to understand the context of problems: what has the negative space to offer? Students are able to develop insight into the relationships in a problem, where the horizon line lies, what the different eye levels are and their different perspectives. What are the proportional relationships? Are they adjustable or unchangeable? What is the basic unit upon which all proportions are calculated – time, money, aesthetics or reputations?

Students are able to see the lights and shadows of a problem. Is the future of a project in high key (light) or low key (dark)? What are the prospects of lights against shadow in a business? Are the unknown too dark to risk into? Do the lights and shadows logically reveal the three dimensions of a project? In seeing the gestalt of a problem, the student looks at it wholly to gain new perspectives or searches for what may have been missed out which provides a new take on the problem.

Conclusion

The many years of this author's teaching and assessment of students' learning experiences in the visual arts department show that visual arts training, as ways of knowing, is holistic in terms of cognitive functions and processing of information textually and visually. It is a visual literacy training encompassing other forms of literacies but essentially relies on sense perception and the creative process as a way of knowing. All sub-sections in the visual arts department ranging from painting, sculpture, graphics, printmaking, textile and fashion design, ceramics, art history, art appreciation and criticism, art education, among several others, provide students with knowledge that is fully integrated into Bloom's Educational Taxonomy of Learning, comprising of the cognitive, affective and psychomotor domains. These domains provide students with intellectual skills in processing mental information, heightened sensibilities in dealing with complex emotional and aesthetic influences, and motor skills in manipulating tools, materials and techniques as forms of knowledge development.

The learning outcomes show that students in the visual arts department appropriate other forms of knowledge such as mathematics, philosophy and logic, sociology, indigenous knowledge etc. The visual arts ramify into other subject areas such as sciences, engineering, medicine, technology etc through the uses of the creative model of sense perception which equip students with observation and application skills. As embodied ways of knowing, students in the visual arts are grounded in the practice of the creative processes as ways of learning which provide them with technical aptitude for processing information and creating visual representations.

Visual arts training adopts the constructivist learning approach in which students are not passive consumers of information but constructors of products. This is further exemplified by the student's drawing and painting published in this article as output of the creative processes in visual arts. The research work concludes that visual arts education equips students with thinking and problem-solving skills to fully participate in public, community and economic life of the society. It, therefore, recommends that art appreciation should be more broadly taught in schools and universities as a broad-based education in visual literacy closely linked to digital literacy as curriculum requirement for an educated person in the 21st century, particularly that knowledge in this century is visually-driven.

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