

INVESTIGATING THE IMPORTANCE OF DRAWING SKILL DEVELOPMENT FOR NON-ART TEACHERS: ADDRESSING CHALLENGES AND IMPROVING PEDAGOGICAL APPROACHES

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Abstract

Developing drawing skills is crucial for Teachers to enhance their pedagogical practices and overcome challenges in the classroom. Drawing offers a unique visual language that can improve teaching effectiveness, practical engagement and student performance across various subjects. Despite its potential benefits, drawing is often overlooked in educational settings, with many Teachers believing it is a skill reserved for artists. This study explores the significance of drawing skill development for secondary school Teachers and argues that drawing is a versatile skill that can be improved upon through consistent practice and constructive approaches. Using a quantitative research design, the surveyed 40 non-art Teachers from secondary schools in Nsukka metropolis, Enugu State, Nigeria. Participants included Teachers of subjects such as Biology, Chemistry, Mathematics, English and Geography. They responded to a structured questionnaire designed to explore the pedagogical connections between drawing and non-art subjects, strategies for skill enhancement and the perceived importance of drawing in teaching and learning. Data analysis involved mean score calculations using the four-point Likert scale. The findings of the study among other things underscored the importance of incorporating drawing skills as a fundamental component of Teacher training programs to enhance teaching strategies and student learning outcomes.

Keywords: Drawing Skills, Teachers, Skill Acquisition, Teaching, Learning

Introduction

During the fieldwork for this study, many school teachers who were approached to volunteer as respondents often exclaimed, "I cannot draw" or "I cannot even make a straight line!" These expressions are typically followed by laughter from both the Teachers and the researchers, reflecting a common sentiment shared by many individuals, regardless of age. It is not unusual to encounter people who believe that they lack drawing abilities or have never successfully created a drawing. This raises an intriguing question: how did these individuals learn to write each letter of the alphabet? Each character, with its unique curves, straight lines, twists, and turns, represents a form of drawing skill that is typically acquired in early childhood and utilized throughout life (Clark & Clark 2011).

The ability to identify and draw basic geometric shapes is also a fundamental part of elementary education. However, these skills often fade into obscurity as individuals progress through their academic and professional lives, leading to a general dissociation from everyday drawing practices (Betts 2011). In line with Betts (2011) observation, we have observed that while elementary school children are taught to identify and sketch shapes like circles, triangles, and squares, these basic skills are often neglected as one progresses through education, drawing is then perceived as some complex artistry. This decrease in drawing activities can have negative consequences, as studies have demonstrated the importance of visual-spatial abilities not only in arts but also in disciplines like Science, Engineering, Mathematics, and Architecture (Duffy 2017; Mathewson 1999; Lord & Holland 1997).

Drawing: an innate human ability

In their study, Clark & Clark (2011) explained that from early childhood, drawing plays an important role in cognitive development. Children learn to see and represent individual letters before they can write any alphabet. Similarly, Betts (2011) rightly argued that, without realizing it, many people engage in drawing every day, but the full scope of drawing is frequently not fully appreciated (Saunders 2021). Activities like applying eyeliner, doodling during phone calls, and scribbling directions on sand or the back of an envelope, are all forms of drawing (Sherman 2013; Betts 2011; Moore 2011). Each of these authors emphasized that the issue is not that many people cannot draw effectively, rather that many have not taken the time to understand what drawing entails.

Drawing is a universal language that cuts across fields, time and cultural boundaries (Saunders 2021; Jager 2012; Moore 2011). According to Moore (2011), there are different kinds of drawings. These include abstract, decorative, schematic, diagrammatic, perceptual, expressive, figurative, symbolic, personal, non-representational, and representational drawings. The various types of drawing can generally be grouped into three basic categories namely; Technical, scientific, and artistic drawing are the three basic categories into which the various kinds of drawings can be generally grouped. Each of the categories has a variety of uses. It is important to note, however, that drawing includes all of these subcategories in this context. Its goal is to simplify and make concepts, thoughts, or experiences easier to understand. Drawing is, therefore, a basic mode of expression used to enhance communication, critical thinking, observation and memory retention (Matney, Fischer & Jackson 2023; Fan et al. 2023; Ainsworth & Scheiter 2021).

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The Constructivist Theory

Many learning theories can be explored in relation to adult education. However, Mohammed and Kinyo (2020) emphasized that constructivism is the most relevant. This theory posits that a learner's knowledge is shaped by both prior experiences and social interactions with the environment. Constructivism plays a significant role in education, as it highlights that learning occurs through the integration of new information or experiences with existing knowledge (Taber 2011). This approach involves reconstructing past experiences to address current challenges. It underscores that individual, especially adults, learn by linking new problems or tasks to their previous experiences and applying effective solutions from the past to new situations. In essence, the theory asserts that individuals can and should learn by tackling new problems using their existing skills and knowledge.

Learning is fundamentally an active process. Sjoberg (2010) states that "knowledge is actively constructed by the learner, not passively received from the outside. Learning is something done by the learner" (also see Triantafyllou 2022). This perspective suggests that with a solid foundation in drawing principles acquired from basic education—such as doodling, writing letters, drawing simple geometrical shapes, or applying eyeliner —Teachers can effectively build upon their existing drawing skills. According to the constructivist theory, learning necessitates the active involvement of the learner in acquiring new skills based on previously acquired knowledge and past experiences. This active engagement can lead to the development of unique drawing styles, such as stylized or abstract, without being constrained by traditional artistic methods (Brew, Fava & Kantrowitz 2011).

In Nigeria, the West African Examination Council (WAEC) and National Examination Council (NECO) emphasize the importance of incorporating drawing into the examination process for subjects such as Biology, Introductory Technology/Technical Drawing, Textile/Garment Making, and Fine Arts. Additionally, subjects like Integrated Science, Physics, Chemistry, Music, and Geography also benefit from a strong foundation in drawing for students to excel. However, there is anecdotal evidence suggesting that both Teachers and students do not prioritize drawing exercises sufficiently to harness its full potential in teaching, learning, and achieving excellence in these subjects. As a result, both the teaching and learning processes are hindered.

Statement of Problem

This study explored the critical importance of enhancing teachers' drawing abilities. Improved drawing skills enable teachers to convey concepts visually with greater effectiveness, thereby promoting increased student engagement and comprehension. The paper argues that by enhancing drawing skills, Teachers boost their confidence in creative capabilities that can be booster leading to a more dynamic classroom interactions across various disciplines including the ones invested in this study. In essence, this research investigated how Teachers' proficiency in drawing influence their perceived effectiveness in the classroom. By surveying educators who volunteered for this study, The researchers illuminated the perceived connections between drawing skills and educational outcomes. The study therefore addressed several pertinent questions regarding how the integration of Teachers' drawing skills across different secondary school subjects affects their performance.

Research Questions

The following research questions guided the study;

- 1. What connections exist between drawing and secondary school subjects?
- 2. What strategies can be implemented to enhance teachers' critical observation and representation skills for drawing?
- 3. How important is it to improve teachers' drawing skills?
- 4. In addition to practical subjects, which other subject areas mandated by WAEC (West African Examinations Council) and NECO (National Examinations Council) could benefit from drawing skills, and how?

Purpose of the study

The purpose of the study, was to;

- 1. evaluate the connections between drawing and secondary school subjects.
- 2. identify strategies for improving drawing skills among non-art subject Teachers
- 3. ascertain importance of drawing as a pedagogical tool in enhancing teaching effectiveness.



Methods

Using a quantitative research design, involving a structured questionnaire, the researchers surveyed 40 Teachers from ten (10) purposively selected secondary schools in Nsukka metropolis, Enugu State, Nigeria. The Teachers were non-art Teachers. That is, they were not teaching any subjects related to Fine Arts, Creative Arts, Visual Arts, or any such core art subjects that specifically require some expertise in drawing. Instead, they comprised teachers from subjects such as Biology, Chemistry, Physics, Mathematics, English language and Geography. A combination of stratified and random sampling was used to choose the forty (40) respondents. Four (4) respondents were chosen in each of the ten (10) schools. Using questionnaires, the researchers interrogated the pedagogical connections between drawing and non-art subjects, strategies for skill enhancement and the perceived importance of drawing in teaching and learning. Data analysis involved mean score calculations using the four-point Likert scale.

Four clusters of questions were contained in the questionnaire, each addressing each research questions. A four-point Likert scale (Strongly Agree, Agree, Disagree, and Strongly Disagree) was included in the survey, along with an extra column for comments. The test-retest method was used to assess the instrument's reliability of the instrument which yielded high-reliability index of 0.76. With the help of informed people in the responding schools, the researchers directly administered the study instrument. This strategy promoted genuine responses toward the goal of the study.

To examine the collected data, a mean and frequency table was used. As with the rating scale of response alternatives, the four-point Likert scale of measurement was given numerical values, which served as the foundation for the analysis that followed. Below is the Likert scale and their assigned values:

SA	-	Strongly Agree	4 Points
А	-	Agree	3 Points
D	-	Disagree	2 Points
SD	-	Strongly Disagree	1 Points
Total	-		10 Points

The formula for computing the nominal value of response is $x = \frac{\Sigma fn}{n}$

Where:

 Σ = Summation; x = Nominal Value of Response; f = Frequency of Response; n = Number of Respondents

Therefore, $x = \frac{4+3+2+1}{4}$ i.e. $x = \frac{10}{4} = 2.5$

The acceptance limit for data analysis is implicitly 2.5 as this is the Normal Value of Response and its value is 2.5. Therefore, any item with a mean response of 2.5 or more is deemed acceptable or agreeable by the respondents, whilst any item with a mean response of 2.49 or below is rejected or disagreed with. Furthermore, the following ranges were used to interpret the real limit of numbers:

3.50 - 4.00 = Accepted (Strongly Agree)

2.50 - 3.49 = Accepted (Agree)

1.50 - Rejected (2.49 = Disagree)

0.50 — Rejected (1.49 = Strongly Disagree)

Responses were compiled and data analysis was conducted. Below are the results.

Table 1:	Perceivea	l relatedness	of drawi	ng with	secondary	school	l practical	subjects
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S/N	Statements	SD	D	А	SA	Mean	Decision
1	While teaching pure science subjects such as Biology, Chemistry, Physics, Agriculture, etc. knowledge of drawing skills is essential in enabling the teachers to impact knowledge through illustrations on the board.	5	7	8	20	3.07	Accepted
2	In teaching social science subjects such as Geography, Garment Making, Home Economics etc., drawing skills is helpful for the teachers in representations and illustrations.	0	5	11	24	3.47	Accepted
3	When teachers successfully illustrate concepts on the board, the concepts appear clearer for easy comprehension by the students.	3	7	15	19	3.45	Accepted
4	Successful diagrams from teachers makes no difference in students' learning.	17	15	6	2	1.82	Rejected
5	In general, the majority of secondary schools' subjects are related to drawing.	2	4	16	18	3.25	Accepted

Key: SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree



From the results in Table 1, respondents agreed (weighted mean of 3.07) that Teachers benefit from having drawing skills because they improve their capacity to accurately depict laboratory activities. Furthermore, they significantly agreed (weighted mean of 3.47) that drawing skills are beneficial in art and social science courses. According to a weighted mean of 3.45, the respondents also agreed that Teachers' usage of drawings on the board improves student comprehension. On the other hand, they disapproved of the claim that student involvement in sketching does not improve comprehension (weighted mean of 1.82). Overall, respondents (weighted mean of 3.25) concurred that drawing and many other secondary school subjects are connected/related.

Table 2: Respondents' views regarding methods that could improve Teachers' criticalobservation and representation skills

S/N	Statements	SD	D	Α	SA	Mean	Decision
1	To encourage drawing skill acquisition in teachers, Drawing (as a subject) should be made mandatory at every educational level.	0	4	8	28	3.6	Accepted
2	Since Fine Arts undoubtedly helps in critical observation and representation, it should be made compulsory for junior secondary schools.	2	4	21	13	3.12	Accepted
3	Drawing may be taught as whole topics (and not sidelined) in school subjects that require visual illustrations.	8	18	16	6	2.90	Accepted
4	At all school levels, the place of drawing in developing ideas for technological advancement ought to be emphasized.	2	1	24	13	2.60	Accepted
5	In teaching school subjects that require drawing, the teachers' ability to draw is crucial.	1	3	15	21	3.40	Accepted

Key: SD = *Strongly Disagree, D* = *Disagree, A* = *Agree, SA*= *Strongly Agree*

The results in Table 2 show that with a weighted mean score of 3.6, the respondents agreed that drawing ought to be required in elementary education. They also agreed, with a weighted mean of 3.12, that Fine Arts undoubtedly helps in critical observation and representation, and so should be made compulsory for junior secondary schools. With a weighted mean of 2.90, the respondents agreed that drawing may be taught as a stand-alone topic in subjects that

require visual illustrations. Then, with weighted values of 2.60, 3.14, and 3.40, they also concurred that the place of drawing in developing ideas for technological advancement ought to be emphasized at all school levels and teachers' ability to draw is crucial in teaching school subjects that require drawing.

S/N	Statements	SD	D	Α	SA	Mean	Decision
1	When a teacher uses illustrations while teaching practical subjects, it makes no difference in learning.	16	14	7	3	1.92	Rejected
2	If a teacher makes poor visual representation in an attempt to illustrate, it negatively affects students understanding of the idea being presented.	3	4	18	15	3.12	Accepted
3	When a teacher is not able to illustrate what he expects the students to illustrate, it discourages the students ability to represent.	2	6	15	17	3.17	Accepted
4	Teachers who cannot draw but teach subjects that mandates drawing, should always maneuver their classes without attempting to draw.	17	16	5	2	1.80	Rejected
5	Teachers who teach subjects that require drawing can teach students drawing without having their ability to draw.	13	15	8	4	2.07	Rejected

Table 3: Respondents opinion on the relevance of improving Teachers' ability to draw

Key: SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

The data in Table 3 indicates that respondents do not believe that Teachers' illustrations have no impact on learning, as evidenced by a weighted mean of 1.92. It was agreed, with weighted means of 3.12 and 3.17, that poorly drawn illustrations by teachers can hinder learning and that teachers' lack of drawing skills can discourage students from developing their drawing skills. Additionally, respondents disagreed with the notion that Teachers who cannot draw should always find alternative ways to teach when drawing is necessary, and that subjects requiring drawing can be effectively taught without the teachers' drawing proficiency.



S/N	Statements	SD	D	A	SA	Mean	Decision
1	In Mathematics, adequate drawing skills enhance the plotting of graphs, representation of geometrical shapes, presentation of symbols, pie charts and bar charts, etc.	1	4	14	21	3.30	Accepted
2	Signs and symbols used in Further Mathematics is usually represented more easily with students who draw well.	4	14	13	9	2.67	Accepted
3	Students' representations of graphs in Economics (those of diminishing returns, demand, and supply, etc.) look smarter when the students have basic drawing skills.	3	6	14	17	3.12	Accepted
4	In junior secondary classes, technical drawings of Introductory Technology, musical notes of Music, body parts analysis in Integrated Science, etc., all involve drawing skills for effective representation which enhances general understanding and excellence in the subjects.	2	2	14	22	3.40	Accepted
5	When a teacher can make effective visual illustrations, students learn more quickly, how to do the same.	0	2	10	28	3.60	Accepted

Table 4: Respondent views on other subject areas that require drawing

Key: SD = *Strongly Disagree, D* = *Disagree, A* = *Agree, SA*= *Strongly Agree*

The results presented in Table 4 show weighted means of 3.30, 2.67, 3.12, and 3.40, suggesting that respondents believe that students' performance in subjects such as Mathematics, Further Mathematics, Economics (for senior secondary classes), and Introductory Technology, Music, and Integrated Science (for junior secondary classes) could significantly benefit from strong drawing skills. Furthermore, with a weighted mean of 3.60, respondents strongly advocate for teachers to utilize effective visual illustrations to enhance students' drawing skills, thereby promoting quicker learning in this area.

Discussion

The findings of the study with respect to research question One show a direct correlation between drawing and practical courses in secondary education. It was specifically noted that non-art subjects such as Biology, Chemistry, Physics, Agriculture, Geography, and Garment Making benefit significantly from drawing skills. Respondents unanimously agreed that strong drawing abilities enhance teaching effectiveness across such subjects. Similarly, the finding related to research question two outline potential strategies for improving Teachers' drawing skills. The analysis suggests that drawing should be a mandatory component at all educational levels with Fine Arts being a compulsory subject at the Junior Secondary School level. Furthermore, it is recommended that drawing be incorporated as a dedicated topic within subjects that require visual illustrations. Additionally, Teacher training programs should emphasize the importance of drawing in promoting technological advancement and encourage Teachers to refine their drawing skills. Such training should align with constructivist theory, which posits that learning is an active process requiring the active involvement of the learner (Triantafyllou 2022; Sjoberg 2010). Learning should not be viewed as a passive endeavor; rather, it requires persistent practice. By understanding drawing as a skill developed from basic schooling (such as learning to doodle, write letters of the alphabet, and draw basic geometry), teachers can build constructively on their existing drawing skills with less emphasis on purely artistic representations (Brew, Fava & Kantrowitz 2011).

Findings addressing Research Questions three and four demonstrated that educators who are proficient in drawing can accelerate students learning and inspire them to cultivate drawing skills. Aadditional subject areas influenced by drawing skills, beyond practical subjects, were identified. The critical role of effective visual illustrations in supporting student learning across a wide range of disciplines was highlighted. Notably, Teachers who lack these skills may struggle to effectively teach subjects requiring visual aids, which directly addressed the third research question. Significantly, drawing is a universal language that transcends many disciplines at both foundational and advanced levels (Saunders 2021; Duffy 2017; Jager 2012; Moore 2011).

To reiterate, as noted by Moore (2011), there are various types of drawings, including abstract, decorative, schematic, diagrammatic, perceptual, expressive, figurative, symbolic, personal, non-representational, and representational. Each type of drawing is significant and can be developed by individual teachers through training. The primary goal is to simplify the



understanding of concepts, thoughts, or experiences through visual illustrations. Studies have shown that drawing enhances communication, critical thinking, observation and memory retention (Matney, Fischer & Jackson 2023; Fan et al. 2023; Ainsworth & Scheiter 2021). These skills are crucial for effective classroom teaching and learning.

Recommendations

Based on the findings of the study, it was recommended that;

- Fine and applied Arts or creative Arts with very rich drawing and artistic components should be made compulsory subject at both junior and senior secondary school levels in Nigeria. This would help to enhance Teachers' instructional skills and students learning outcome.
- 2. Teacher training programme in Nigeria should incorporate Fine and Applied Art in order to produce Teachers who are very proficient in drawing in other artistic skills across different subject areas.
- 3. Periodic training such as conferences, workshops, seminars etc. should be organized for in-service Teachers at the basic and post basic educationa levels to enhance their proficiency in drawing and other artistic skills. This would assist concerned Teachers to prioritize use of drawing in their instructions across different subject areas.

Conclusion

It is essential to recognize that one cannot impart what one does not possess. Therefore, this study emphasizes the importance of viewing drawing as a foundational skill for classroom teachers. It acknowledges that drawing is an innate ability present in all individuals. With consistent practice and active involvement, individuals of all ages, especially teachers, can refine this innate drawing ability. In doing so, they not only pass on drawing skills to their students but also enhance overall classroom learning. Embracing a constructivist approach to learning can help educators overcome self-doubt and confidently develop their drawing skills. The findings of this study highlight the necessity for educators to consider drawing as a core skill that transcends mere artistic expression, with the potential to enhance communication, comprehension, and classroom engagement. Therefore, it is recommended that drawing skills be integrated as a fundamental component of teacher training programs to improve teaching strategies and student learning outcomes.

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