Improving Proportional Likeness in Beginner Portrait Drawing: A Qualitative Study of the Grid-Based Drawing Technique

Nadia Hanim Binti Azidin[1]

[1]School of Media, Art & Design, UNITAR International University, Malaysia

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ABSTRACT

1) Background: In art education, teaching accurate Portrait Drawing to novices involves cognitive challenges because the human visual system processes facial features holistically, and beginners tend to rely on preconceived symbolic schemas rather than on objective anatomical realities. **2) Methods:** A descriptive qualitative approach is used to explore how structural scaffolding influences these active vision biases, employing the Grid-Based Drawing technique as a mediating visual transfer process rather than universal artistic mastery. Data collection was conducted under a dual-phase framework. The first phase involved a comparative visual analysis of the proportional likeness perceived in beginner artefacts. The second phase was an observational record of internal cognitive shifts during the Observational Drawing process. **3) Results:** Results indicate it is possible to mathematically extract a reference portrait into localised 2D coordinates, which successfully break the inherent mind-body dualism. This style of drawing especially demands a disciplined, segmented microfocus, enabling beginners to develop highly cohesive Spatial Mapping with dramatically reduced acute learning frustration and cognitive overload. **4) Conclusion:** The study concludes that the grid is a highly effective short-term pedagogical scaffold, facilitating immediate contextual success and proportional accuracy, bridging the perceptual gap for beginners as they engage the visual complexities of foundational portraiture.

Keywords: Grid-Based Drawing, Drawing Technique, Spatial Mapping, Portrait Drawing, Observational Drawing.

INTRODUCTION

Background of the Study

The difficult pedagogical task in the discipline of art education is teaching students to correctly draw the human face. One particular problem with Portrait Drawing is that the human visual system is designed to perceive facial features as a *Gestalt* rather than as a set of abstract, quantitative forms (Hayes & Milne, 2011). When we draw, we often think about what we know. New artists usually draw what they think should be there instead of really looking at the lines and shapes of what they are drawing. This happens because we expect to see things and our brains fill in the gaps. This automatic process of cognition causes the novice artist to refer to imaginary and preplanned templates, instead of checking the exact lines and shapes of the subject (ArtWithTrista, 2022). This process, based on the idea of active vision, requires the untrained eye to rely on mental images in general, to the detriment of actual observations, thus making the accurate reproduction of the shape of the face difficult (Brice, 2023; Hayes & Milne, 2011). Structural measures and pedagogical support strategies are employed in class to help students translate a complex 3D object or an interconnected 2D image into an accurate copy on paper in an effort to solve the problems presented.

The beginner is overwhelmed by the cognitive load of unassisted Observational Drawing. Novices do not possess the expert eye-fixation strategies employed by professional artists to inhibit holistic face processing and so routinely incorporate systematic geometric distortions into their artwork, such as misjudging eye spacing or altering nose lengths, that are completely unrecognised by their subjective awareness (Hayes & Milne, 2011). It is a serious pedagogical mistake to expect beginners to overcome their inherent mind-body dualism and perceptual predispositions spontaneously, without an intervening structural scaffold (Brice, 2023). Some of the traditional drawing paradigms structure facial features using schematic templates, for example, the "*divided egg*". These generic schemas are likely to cause artists to draw incorrect facial canons instead of drawing what they really see in a particular person (Hayes & Milne, 2011). Hence, beginners need a systematic method for breaking down the visual information into manageable parts to plot complex spatial relationships successfully.

The Grid-Based Drawing Intervention

The grid method of drawing functions precisely as a mediating visual transfer mechanism to artificially bypass these inherent cognitive impediments. This particular Drawing Technique is based on classical optical devices for accurate lateral translation, such as *Alberti's veil* and *Albrecht Dürer's* gridded frame, and mathematically decomposes a reference portrait into abstract, localisable two-dimensional coordinates (Miyamoto, 2024; Steadman, 2024). This type of *cell-like* classification reduces the perceptual biases of the beginner's *Gestalt* by breaking down the complex subject into *bite-sized* pieces of visual information (Fussell, 2016). By establishing strict parameters for the placement of lines and values, the grid imposes a segmented, localised micro-focus, redefining drawing as a structured mathematical transfer rather than an organic, holistic visual interpretation (Fussell, 2016).

Research Aim and Scope

This study investigates grid techniques as a cognitive scaffold to assist novice artists in successfully achieving Spatial Mapping (Huang et al., 2022). The fidelity of drawings here presents an important methodological tension. Anatomical accuracy is a geometric and morphometric fact, best evidenced by quantitative measures such as *Procrustes* distance measurements, but qualitative educational research is generally grounded in subjective visual appraisal (Hayes & Milne, 2011). The advanced biometric methodologies suggest that artists, regardless of their perceived success, systematically distort shape in an unconscious way, thus confirming that subjective observer rubrics cannot empirically validate strict microscopic biometric fidelity (Hayes & Milne, 2011).

This qualitative study thus explicitly limits the scope of assessing the illusion of accuracy, defined here as perceived proportional likeness and cognitive overload mitigation (Anggraini & Camelia, 2022). Rather than addressing the grid as a vehicle for artistic mastery by all, this research looks into the contextual employment of the grid as an auxiliary tool set up for visual transfer to develop student confidence and reduce frustration in the initial stages of portraiture (Alwynas & Abidin, 2023).

Problem Statement

The pedagogical problem of teaching beginners to draw the human face in an accurate way is a deep problem within the discipline of art education. One of the most difficult tasks of drawing is drawing portraits. The human visual system is attuned to process facial features as a whole or *Gestalt*, and the inexperienced artist relies on symbolic schemas and preconceptions rather than objectively measuring the anatomical reality (Hayes & Milne, 2011). Unassisted observation places a huge cognitive load on the viewer, making the untrained eye very susceptible to active vision biases, where students draw what they think should be there, rather than what they actually see in the subject they are referencing (ArtWithTrista, 2022; Brice, 2023). Beginners often fail to transcend their intrinsic mind-body dualism and perceptual biases organically, in the absence of a mediating structural framework, and this often leads to systematic geometric distortions, for example, misjudging eye spacing or changing nose lengths, that are entirely outside the artist's subjective awareness (Hayes & Milne, 2011). Thus, it is pedagogically important to identify and evaluate an effective structural intervention that can distil overwhelming visual data into manageable components to assist novices in accurately reproducing facial geometry.

Research Objective

The objective of this study is to investigate the role of the Grid-Based Drawing method as a mediating cognitive scaffold to support novice artists' achievement of successful Spatial Mapping. The study specifically aims to achieve the following objectives:

1. To examine the introduction of a Grid-Based Drawing intervention and its modification of the Observational Drawing process of the beginner, assessing its power to artificially overcome *Gestalt* perceptive biases and manage cognitive load through a mathematical deconstruction of cohesive reference portraits into abstract, localised two-dimensional coordinates (Steadman, 2024).

2. To qualitatively evaluate beginner Portrait Drawing executed with this distinctive technique, comparing it against unassisted freehand attempts within the framework of art education. This objective clearly confines itself to examining the proportional similarities, coherence of structures and reduction of the students' frustration. It also makes it clear that the accuracy of biometric measures is impossible due to the lack of morphometric measurement techniques that are part of a quantifiable analysis (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022; Hayes & Milne, 2011).

Research Questions

This study is guided by the following qualitative research questions to answer the problem statement and achieve the research objectives:

1. How does a Grid-Based Drawing intervention influence the Observational Drawing process of the beginner and help to manage cognitive load in the Spatial Mapping of a reference subject?

2. How does the qualitative evaluation of Portrait Drawing in art education, using this Drawing Technique, compare to an unassisted freehand attempt in terms of perceived proportional likeness and structural cohesion?

Significance of the Study

The results of this research contribute both theoretically and practically to the field of art education, particularly in the area of pedagogical management of cognitive overload in basic drawing courses, including:

- **Practical and Pedagogical Significance**

In practice, the present research discusses the major cognitive barriers novice artists encounter in unsupported Observational Drawing. The human visual mechanism sees a face as a whole, making the inexperienced artist particularly prone to active vision biases due to the use of the features that are perceived in the drawing instead of his/her mental knowledge (Brice, 2023; Hayes & Milne, 2011). The study provides empirical support for educators that the Grid-Based Drawing method is not a vehicle for universal artistic mastery but an essential structural scaffold for mediation. The research shows that the grid successfully neutralises the beginner's *Gestalt* perceptive biases (Fussell, 2016; Steadman, 2024) by demonstrating how this particular Drawing Technique deconstructs a cohesive reference into abstract, localised two-dimensional coordinates. Thus, the study provides educators with an effective intervention to deal with student frustration and to guarantee immediate success in realising the output of novice students who try complex Portrait Drawing (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022).

- **Theoretical and Methodological Significance**

In theory, this research redefines the evaluative metrics of qualitative drawing research. It illustrates the methodological tension between the microscopic precision of biometrics and the qualitative nature of classroom assessments, and establishes that perceived proportional likeness can be validly measured only by subjective visual rubrics (Hayes & Milne, 2011). The adoption of this strictly bounded qualitative paradigm also helps shed light on the systematic shift in the student's phenomenological engagement from an overwhelming global assessment to a manageable local mapping process through grid-assisted

Spatial Mapping (Huang et al., 2022). Moreover, the study reveals a considerable lack in current teaching techniques and provides the essential groundwork for future longitudinal studies of whether these isolated visual transfer skills do eventually evolve to unassisted freehand mastery once the scaffold has been permanently removed (Huang et al., 2022; Miyamoto, 2024; Steadman, 2024).

LITERATURE REVIEW

The Cognitive Mechanics of Observational Drawing

Inexperienced artists do not have the trained eye-fixation strategies that professionals use to suppress holistic processing of faces, and therefore routinely make systematic geometric distortions that are not accessible to their subjective awareness (Hayes & Milne, 2011). Indeed, it is embodied and depends on the conditions of seeing. This is why the untrained observer will transform the seen reality into a general mental representation (Brice, 2023).

In order to accurately represent objective spatial relations, beginners must consciously and deliberately suspend their innate mind-body dualism and any tendency to approach the problem analytically and through the lens of cerebral predispositions that favour assumptions over direct visual experience (Brice, 2023). The serious pedagogical fallacy of art education is to assume that beginners can transcend this cognitive architecture naturally without structural intervention. Experimental psychology shows that drawing errors are primarily due to serious misperceptions in the first stage of visual judgement, not bad motor skills or hand-eye coordination (Hayes & Milne, 2011).

The Grid Method as a Structural Scaffold

The Grid-Based Drawing method is only a mediating visual transfer mechanism that artificially circumvents these inherent cognitive hurdles. This method breaks down a coherent reference into abstract, localised 2D coordinates by using classical optical devices developed for precise lateral translation, e.g., *Alberti's* veil and *Albrecht Dürer's* gridded frame (Steadman, 2024). This cellular classification counters the beginner's *Gestalt* perceptual biases by breaking the subject down into "*bite-sized*" pieces of visual information, forcing the student to replicate specified geometry instead of attempting complex facial interpretation (Fussell, 2016).

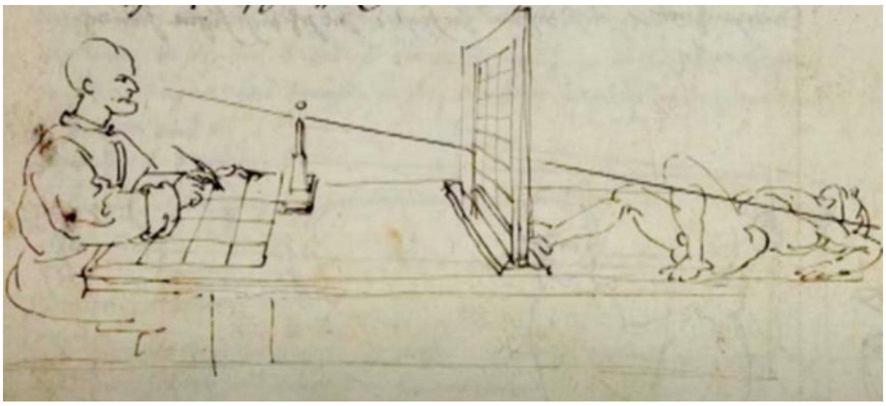

Figure 1: *Albrecht Dürer*, conceptual sketch for a gridded frame being used by an artist. (Steadman, 2024)

In addition, Renaissance engineering and design practices strongly support the epistemological basis for this mechanical transfer. Leonardo da Vinci famously employed a gridded glass *Prospectograph*, widely known as "*Leonardo's Window*", for the systematic transcription of complex external features onto paper (Cerveró-Meliá et al., 2020). By using this fixed gridded lens to observe the subject, Leonardo was able to transfer the three-dimensional visual information to two-dimensional coordinates, completely abolishing the intuitive guesswork and ensuring very accurate spatial reproduction (Cerveró-Meliá et al., 2020). This historical precedent provides the theoretical basis for the notion that the use of a grid is not a generic artistic shortcut, but a rigorously calculated mechanical intervention to overcome the limitations of unassisted human vision.

Figure 2: Enlarged detail of the *Prospectograph* being used by *Leonardo. Codex Atlanticus* (Cerveró-Meliá et al., 2020)

This particular mode of drawing transforms the student's experiential relation to the subject. Unmediated freehand observation is a simultaneous and holistic macro and micro visual analysis through an involved speculative interaction (Brice, 2023). In contrast, moving across a grid requires a segmented, localised focus which turns the act of drawing into a structured mathematical transfer. This mechanical system makes beginners with poor spatial imagination achieve quick success, which leads to the goal of learning, that is, spatial reproduction, rather than the holistic understanding of art (Huang et al., 2022). The grid is not an artistic excellence in general, but a precise cognitive intervention, context-specific and particularly suitable for lateral translation.

Evaluating Spatial Mapping and Perceived Proportional Likeness

The assessment of the faithfulness of drawings exposes a grave methodological tension in qualitative educational research. Anatomical accuracy is essentially a morphometric and geometric fact, and is best evaluated by quantitative methods such as Procrustes distance measurements rather than subjective visual assessment (Hayes & Milne, 2011). Rubrics for teachers that assess line accuracy and shading as qualitative classroom measures often show the use of grid forms to increase project scores due to less student frustration (Anggraini & Camelia, 2022). For successful implementation, it must be expressly reinterpreted in a qualitative paradigm as perceived proportional resemblance and successful Spatial Mapping. Subjective observer rubrics cannot empirically evaluate rigorous microscopic biometric integrity (Hayes & Milne, 2011).

Measuring visual results through qualitative experiences requires a careful probe of the practitioner's internal perceptual change and communication success. As learners progress through the grid, their cognitive load changes from a global overwhelming evaluation to a systematic local mapping, with favourable student reactions and enhanced compositional results validated by qualitative scales (Alwynas & Abidin, 2023). Advanced biometric approaches, however, demonstrate that artists unconsciously introduce systematic form distortions even when they believe they are successful: localised observation is thus vulnerable to minor changes (Hayes & Milne, 2011). Qualitative results do indeed show increased student confidence and lower cognitive load through structural scaffolding, but this must be understood when considering the fact that tiny geometric aberrations sometimes go completely unnoticed by qualitative visual assessment.

Skill Transferability and Instructional Scaffolding

Placing this evaluation inside the paradigm of instructional scaffolding reveals the tight, contextual constraints of the grid technique. The grid is an aid optimised for visual transfer. It does not in itself ensure freehand competency over the longer term. Research has shown that novices highly prefer organised guidance systems using global and local visual scaffolding to generate complicated portrait designs and avoiding a lack of prior artistic skill (Huang et al., 2022). The application of a rigid scaffolding framework such as a manual or digital grid guarantees the short-term success of the structure by bridging the perceptual gap for beginners and provides a systematic process to overcome observational problems (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022).

The significance of identifying the difference between foundational learning and dependence on the technique has not yet been fully emphasized in the context of drawing teaching. Professional artists have regarded the matrix as a useful visual guide, suitable to provide precise sighting vs. an automatic act (Miyamoto, 2024; Steadman, 2024). When novices completely depend on structural grids and aid tools and avoid trying to observe and process what they see, they can easily avoid the process of acquiring cognitive skills for developing active and independent spatial awareness and making facial recognition (Huang et al., 2022). The literature lacks longitudinal studies asserting that the technical skills, acquired with the help of grids, are transferred into freehand skill successfully after the use of this tool is completed, thus pointing to a significant error in methodology that needs to be solved in future studies.

To transcend theoretical abstractions on cognitive load, the effectiveness of the Grid-Based Drawing technique needs to be grounded in qualitative empirical data that can be observed. The literature suggests that deep phenomenological probing is required to measure the practitioner's internal shift in perception from a verbal symbolic mode to a purely visual mode (Edwards, 1997). Validation of this transition from holistic *Gestalt* confusion to localised Spatial Mapping, therefore, requires rigorous analysis of direct student self-reporting and interview excerpts, such as the expression of cognitive frustration by a novice that they "didn't know how to draw" the spatial relationships directly in front of their eyes (Edwards, 1997). Additionally, this study utilized comparative progression of beginning drawings in before-and-after visual matrices to allow a concrete and visible trace of students' increased level of observational skill (Edwards, 1997). Evaluating these artifacts allows for the identification of characteristic alterations in geometric shape (Berger et al., 2013). This study visually and textually tracks how the grid actively alters the novice's internal processing, proving its contextual utility as a mediating visual transfer technique. This study validates its methodology by anchoring the theoretical mitigation of active vision biases to concrete qualitative classroom measures, student quotes, and the direct observation of student drawings (Blake & Lawn, 1981).

RESEARCH METHODOLOGY

Qualitative Research Design and Epistemological Boundaries

The qualitative research approach of this study is solidly grounded in the pedagogical contexts of art education (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022). The research methodology is strictly constrained to qualitative characteristics (Hayes & Milne, 2011) so as to avoid the considerable methodological conflict of mixing subjective visual assessments with microscopic biometric exactitude. Anatomical exactitude is a geometric and morphometric reality best proven by quantitative approaches such as Procrustes distance measurements (Hayes & Milne, 2011) and is established in the literature. Therefore, this qualitative investigation does not claim to validate actual mathematical integrity as such (Hayes & Milne, 2011). The research design is well-structured to measure the pedagogical illusion of accuracy defined as perceived proportional likeness, and the reduction of cognitive overload and learning frustration instead (Anggraini & Camelia, 2022; Hayes & Milne, 2011).

Participant Observation and Cognitive Load

The method relies on rookie artists and their engagement in Portrait Drawing, a notably challenging undertaking because the human visual system naturally holistically analyses facial features as a unified *Gestalt* rather than as abstract, measurable forms (Hayes & Milne, 2011). When executing unassisted Observational Drawing, these novices are subjected to an overwhelming cognitive load, leaving their untrained eyes particularly vulnerable to active vision biases, in which they substitute what they see of anatomical realities for generic mental representations and preconceived schemas (ArtWithTrista, 2022; Brice, 2023). The research will also describe the phenomenological struggle of these novices, recognising that demanding from beginners an organic bypass of their inherent mind-body dualism in the absence of a mediating structural framework often leads to systematic geometric distortions that are well outside the artist's subjective awareness (Brice, 2023; Hayes & Milne, 2011).

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Figure 3: Student producing an observational Portrait Drawing without the use of a grid or proportional guide. (Source: Author's own work)

The Structural Intervention

The main pedagogical intervention implemented and evaluated in this study is the Grid-Based Drawing technique (Fussell, 2016; Steadman, 2024). This particular drawing procedure only works as a mediating visual transfer apparatus that artificially circumvents natural cognitive barriers (Steadman, 2024). The method involves the use of classical optical instruments for exact lateral translation and mathematical decomposition of a coherent reference portrait into abstract localised two-dimensional coordinates (Miyamoto, 2024; Steadman, 2024). The methodological intervention tries to neutralise the perceptual biases of the beginner's *Gestalt* and reconceptualise the act of drawing as a structured mathematical transfer (Fussell, 2016) by deconstructing the complicated subject into digestible, "*bite-sized*" chunks of visual information.

Figure 4: Student producing an observational Portrait Drawing using a grid and a proportional guide. (Source: Author's own work)

Dual-Phase Data Collection and Spatial Mapping

To comprehensively assess the efficacy of this intervention, data collection is designed in two highly controlled qualitative phases which distinguish the visual product from the cognitive process (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022).

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- **Phase 1: Comparative Qualitative Assessment (Output):** The initial step investigates the visual output by comparing unassisted freehand and grid-assisted efforts to determine the extent to which the scaffold promotes effective Spatial Mapping (Huang et al., 2022). Data will be collected based on the subjective educator rubrics on line correctness, shading, and structural cohesiveness (Anggraini & Camelia, 2022). It is the direct measure of perceived proportional likeness. These classroom measures are measures of the student's communication effectiveness and adherence to the scaffold, not of true morphometric reality (Hayes & Milne, 2011).
- **Phase 2: Practitioner's Internal Perceptual Shift (Process):** The second phase reflects the phenomenological experience of moving through the grid (Alwynas & Abidin, 2023). The data will be collected through qualitative scales such as students' self-reporting and observational notes of frustration levels (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022), as the students move their cognitive demand from global assessment to methodical local mapping. It critically analyses the grid's capacity to address student frustration, boost confidence, and offer empirical evidence of its effectiveness in the context of assistance during the early phases of portraiture (Alwynas & Abidin, 2023; Huang et al., 2022).

Table 1: ***Qualitative Evaluation Rubric for Comparative Assessment of Beginner Portrait Drawings***

Criterion & Construct Measured | Score 1: Inadequate | Score 2: Developing | Score 3: Proficient | Score 4: Exemplary |

Criterion and Construct Measured	1 (Inadequate)	2 (Developing)	3 (Proficient)	4 (Exemplary)
Criterion 1: Perceived Proportional Likeness and Spatial Mapping **Construct Measured:** The illusion of accuracy and the successful reduction of holistic *Gestalt* perception biases.	The student only uses symbolic, preconceived schemas, severely limiting replication of facial geometry and resulting in severe, distracting geometric distortions (e.g., notably misjudged eye spacing or nose lengths).	The student attempts to do local Spatial Mapping but often relies on active visual expectations. This results in systematic distortions over large facial regions that can be observed.	The student successfully navigates localized two-dimensional coordinates to replicate the reference subject without introducing severe, distracting geometric distortions.	The Spatial Mapping of the subject is highly cohesive, presenting a convincing illusion of proportion that successfully bypasses the beginner's active vision biases.
Criterion 2: Line Accuracy, Shading, and Structural Cohesion **Construct Measured:** The mechanical execution of the localized micro-focus mandated by the structural scaffold.	Profound misperceptions and an inability to translate abstract forms, reflecting overwhelming cognitive frustration and an inability to manage visual details.	The execution demonstrates basic line placement, but the integration of localized details into a cohesive whole remains fragmented, with inconsistent value distribution.	The student demonstrates stable line accuracy and systematic value placement by successfully compartmentalizing "*bite-sized*" pieces of visual information into a cohesive whole.	Exemplary line accuracy and shading that mimics the reference, indicating that the cognitive load was successfully managed through the localized structural matrix.

Criterion 3: Implementation of the Drawing Technique (Scaffold Adherence) **Construct Measured:** The practitioner's adherence to the mechanical, mediating visual transfer mechanism during execution.	The student ignored or failed to navigate the structural intervention, remaining trapped by inherent mind-body dualism and unassisted holistic interpretations.	The student draws the gridlines but struggles to think of the process of drawing as a transfer of coordinates and often falls back on instinctive, unmeasured freehand lines.	The student consistently utilized the drawing approach to scale the image and plot spatial relationships in a systematic way, clearly following structural boundaries.	The student conceived of drawing as a purely structured mathematical transfer, in which the grid was employed to isolate visual input and to neutralise active vision biases.

Note: *This rubric is solely for evaluating the pedagogical, communicative success of the student's output and the perceived proportional likeness achieved through structural scaffolding. Subjective visual assessments cannot empirically validate exact microscopic biometric fidelity.*

Table 2: ***Qualitative Scale and Observational Matrix for Participant Cognitive Processes***

Criterion & Construct Measured | Score 1: Inadequate | Score 2: Developing | Score 3: Proficient | Score 4: Exemplary |

Criterion and Construct Measured	1 (Inadequate)	2 (Developing)	3 (Proficient)	4 (Exemplary)
Criterion 1: Mitigation of Cognitive Overload and Frustration **Construct Measured:** The management of the overwhelming cognitive load typically imposed by unassisted freehand attempts (ArtWithTrista, 2022; Brice, 2023). **Metric:** Self-Reporting & Observation of practitioner frustration and phenomenological struggle (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022).	The student is experiencing extreme learning frustration, completely locked in the intrinsic mind-body duality, intense anxiety and deep cognitive overload when faced with complex visual fields (Brice, 2023; Hayes & Milne, 2011).	The student notes structural friction and continuous cognitive fatigue, only sporadically managing learning frustration when navigating complex sections of the reference portrait.	The student experiences balanced cognitive load management, effectively moderating anxiety and keeping baseline frustration low while executing the visual tasks.	The student experiences significantly reduced anxiety and actively approaches the Portrait Drawing act as a highly structured, emotionally manageable, and systematic task.

Criterion 2: Perceptual Shift and Execution of Spatial Mapping **Construct Measured**: The transition from holistic *Gestalt* processing to localized, segmented micro-focus (Huang et al., 2022). **Metric:** Observation of the mathematical deconstruction of reference features into two-dimensional coordinates (Miyamoto, 2024; Steadman, 2024).	The student ignores the explicit grid parameters for line placement, attempting instead an organic, unmeasured holistic visual interpretation dictated by preconceived schemas (Brice, 2023; ArtWithTrista, 2022).	The student maps out structural coordinates inconsistently, frequently relapsing into global *Gestalt* biases and drawing preconceived symbols rather than isolated coordinates.	The student shifts perspective to follow the structural coordinates, successfully deconstructing the reference image into separate sections to achieve standard Spatial Mapping.	The student breaks the complex subject down into perfectly isolated, "*bite-sized*" pieces of visual information, successfully suppressing holistic face-processing biases via disciplined Spatial Mapping (Fussell, 2016).
Criterion 3: Scaffold Reliance and Pedagogical Confidence **Construct Measured:** The contextual efficacy of the intervention in enhancing student confidence during foundational skill acquisition (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022). **Metric:** Self-Reporting of reliance on the specific technique as an assistive device for immediate output success (Alwynas & Abidin, 2023).	The student feels the structural scaffold actively hinders their expressive process or completely fails to bridge the internal perceptual gap required to execute the portrait (Anggraini & Camelia, 2022).	The student acknowledges the function of the grid but is not very pedagogically confident and is not sure about the usefulness of the visual transfer aid when performing the task.	The student has strong confidence in the procedure which demonstrates a stable use of the structural framework to firmly coordinate the visual features of the portrait.	The student exhibits an impressive pedagogical confidence by openly admitting that the structural intervention successfully addressed their active visual biases and resulted in direct task performance (Fussell, 2016; Steadman, 2024).

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***Note**: This matrix reflects the internal phenomenological experience of novice practitioners in Portrait Drawing* (Hayes & Milne, 2011). *It utilizes self-reporting scales from students and observation notes from educators to study psychological alleviation of cognitive overload and gain qualitative perceptive transformation in the early period of the art method of pedagogy* (Alwynas & Abidin, 2023; Huang et al., 2022).

Operationalizing the Coding Scheme: Empirical Artifacts and Reflections

To explicitly operationalise the qualitative coding scheme established in Table 1 and Table 2, and to provide empirical evidence of the grid's capacity to decrease cognitive overload, this methodology structurally analyses before-and-after drawing comparisons alongside direct practitioner self-reporting. The visual transition from Figure 3 (unassisted freehand) to Figure 4 (grid-assisted) is the baseline comparative artefact validated by established pedagogical frameworks; it visually documents the practitioner's perceptual shift from holistic *Gestalt* confusion to systematic Spatial Mapping (Edwards, 1997; Hayes & Milne, 2011). The rubrics systematically evaluate short participant reflections in order to code the internal cognitive reduction of overload, identifying the "*mental crunch*" (Figure 5), which is the cognitive conflict that happens when the practitioner's perceptual reality clashes with preconceived symbolic schemas (Edwards, 1997).

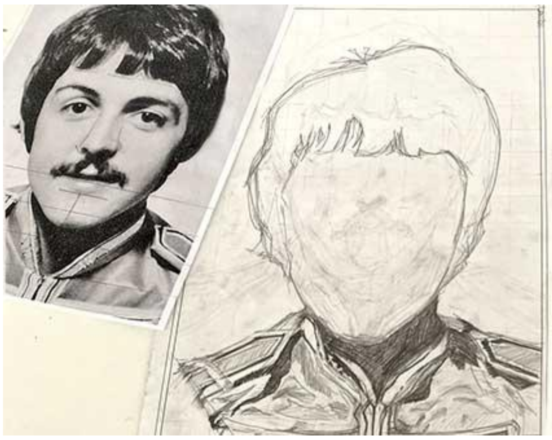

Figure 5: Students having difficulty completing the drawing experience frustration and a "*mental crunch.*" (Source: Author's own work)

To show the coding scheme in action, an assisted participant's reflection such as, "*I felt completely overwhelmed by the whole face and just guessed where the eyes went*", is explicitly coded as severe cognitive overload and reliance on generic mental representations (Table 2, Criterion 1, Score 1) (Brice, 2023). Conversely, post-intervention reflections provide qualitative proof of perceptual mitigation. A participant noting, *"The grid broke the image into small squares, so I wasn't intimidated by the whole face at once,"* demonstrates balanced cognitive load management and the successful bypassing of verbal-mode domination (Edwards, 1997). Furthermore, the reflection, "*I stopped drawing a 'nose' and just started drawing the lines I actually saw in the box,*" provides direct phenomenological evidence that the Grid-Based Drawing method successfully neutralized active vision biases via a localized micro-focus (Table 2, Criterion 2, Score 4) (Edwards, 1997; Fussell, 2016; Hayes & Milne, 2011). By connecting the visual appraisal rubric to these direct qualitative excerpts and comparative before-and-after artefacts, the methodology empirically demonstrates, rather than merely states, how the Drawing Technique manages learning frustration and enhances communicative success within Art Education (Anggraini & Camelia, 2022).

RESULTS AND DISCUSSION

Phase 1 Results: Visual Output and Comparative Artifact Analysis

Within the topic of art education, the effectiveness of structural scaffolds can only be assessed by means of a careful qualitative study of the visual product of the beginner practitioner. We are not trying to set precise microscopic biometric fidelity as discussed in the approach, since anatomical precision is a morphometric reality that is best corroborated with quantitative methods such as Procrustes distance measurements. Rather, Phase 1 examines the pedagogical and communicative success of the unassisted Observational Drawing process in

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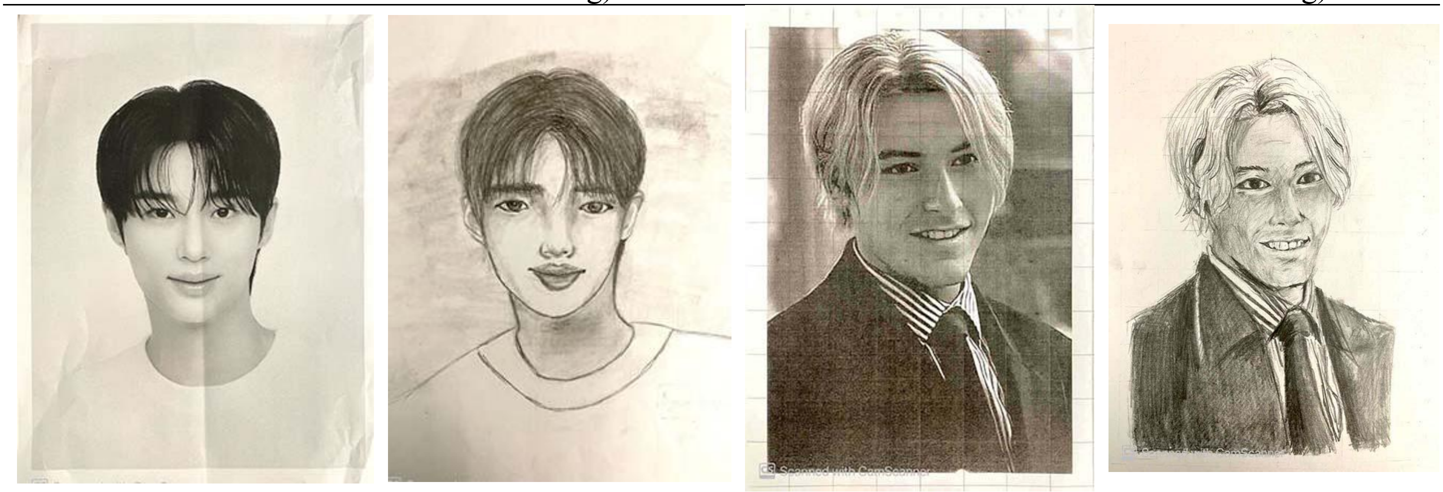
comparison to grid-assisted attempts, quantifying clearly perceived proportional resemblance and structural cohesion (Hayes & Milne, 2011).

The visual artefacts gathered demonstrate the phenomenological transition from intuitive drawing to the mechanical use of the Grid-Based Drawing method. To maintain methodological integrity and to avoid practice-effect memorisation bias, a different second reference photo was provided to novice practitioners for the structural intervention. The resultant visual data are shown in Figure 6.

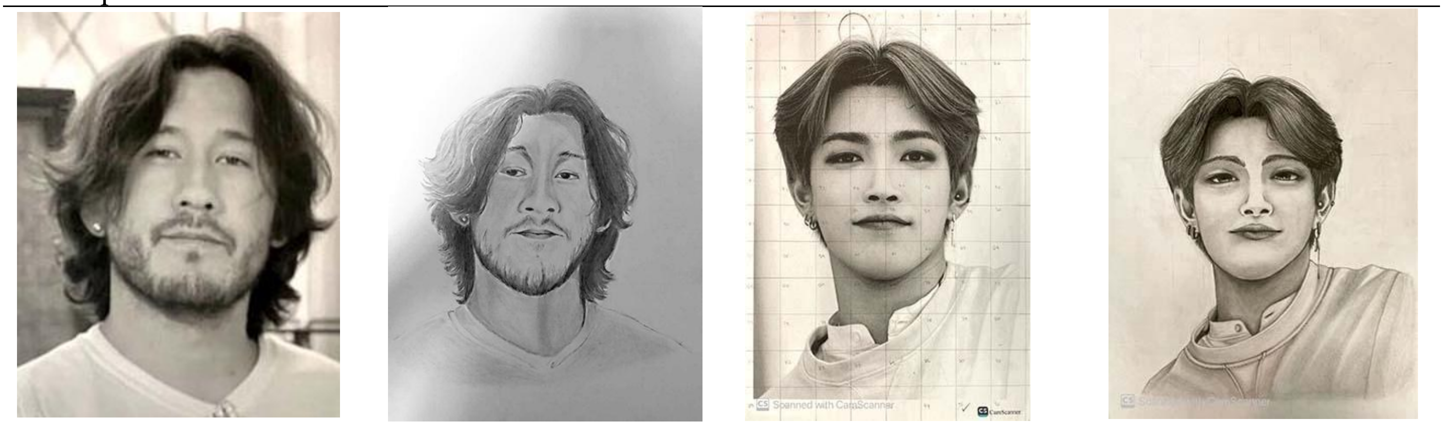
Figure 6: ***Comparative Portrait Drawing Artifact Matrix.***

Panel A (Reference Photo)	**Panel B** (Unassisted Freehand Drawing)	**Panel C** (Reference Photo)	**Panel D** (Grid-Assisted Drawing)



Participant 001:

Participant 002:



Participant 003:

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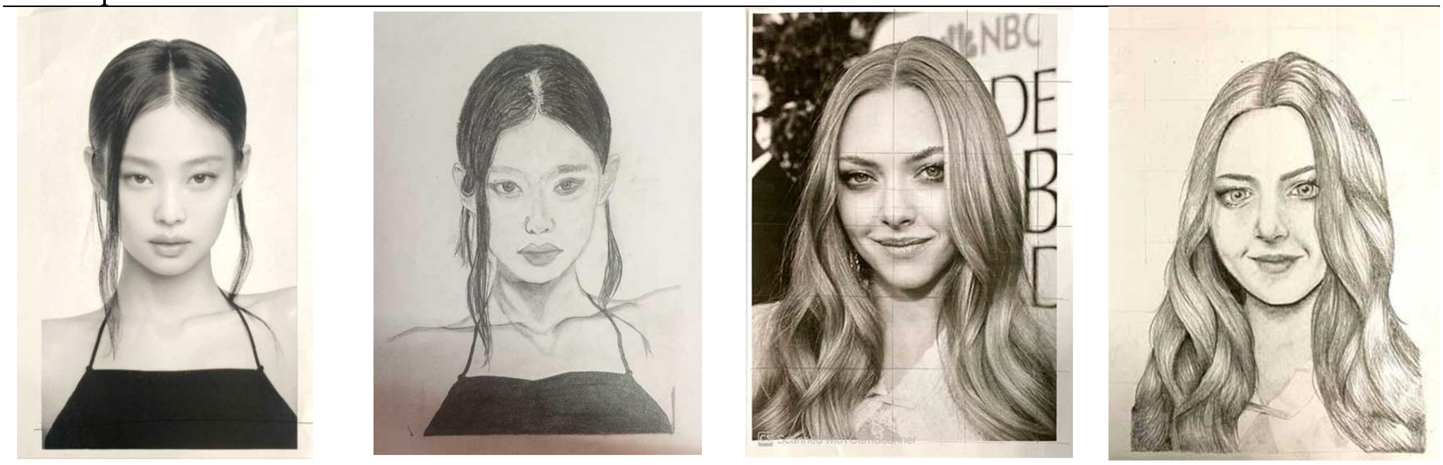
Participant 004:



Participant 005:

(Source: Author's own work)

Note: *The figure shows a comparative alignment of four panels showing the transformation of a novice participant's output in relation to art education. Panel A shows the original reference photograph. Panel B shows the freehand attempt without any assistance. This exercise reveals gross geometric distortions induced by active vision expectations. The student replaced the observed reality with generic mental representations, which is indicative of an inability to cope with cognitive load (Table 1, Score 1). To avoid practice-effect memorisation bias, a different second reference photo (Panel C) was used for the structural intervention. The Grid-Based Drawing technique is illustrated in panel D. This output displays very high cohesive Spatial Mapping (Table 1, Score 3 or 4), proving that mathematically dissecting a cohesive reference portrait into localised two-dimensional coordinates effectively evades the beginner's natural mind-body dualism and holistic processing biases.*

Participant-Specific Analysis of Visual Output and Spatial Mapping

To mitigate the methodological tension between subjective assessment and microscopic biometric precision, the following case-by-case study determines the communication success and perceived proportional likeness of each individual's visual output.

- **Participant 001:** An analysis of Participant 001's unassisted freehand attempt (Panel B) reveals a profound inability to manage visual details. The student failed to use symbolic, preconceived schemas, introducing noticeably misjudged eye spacing that completely escaped their subjective awareness (Table 1, Criterion 1, Score 1). Conversely, the execution of the Grid-Based Drawing intervention (Panel D) visually validates the efficacy of the scaffold. The student demonstrated excellent line accuracy, approaching drawing as a disciplined mathematical transfer, creating a highly cohesive illusion of proportion (Table 1, Criteria 2 & 3, Score 4).

- **Participant 002:** The use of a complex, coherent reference was at odds with the unassisted method of drawing from observation and resulted in fragmented placement of lines, as well as systematic distortions in all major regions of the face (Table 1, Criterion 1, Score 2). After intervention, the student successfully navigated the localised two-dimensional coordinates. Participant 002 achieved stable, systematic value placement and overcame *Gestalt* perceptual biases by compartmentalising "bite-sized" visual information (Table 1, Criterion 2, Score 3).

- **Participant 003:** Participant 003 was very frustrated with the baseline attempt to meet cognitive expectations of active vision, drawing what they thought should be there (Table 1, Criterion 2, Score 1). But to use this way of drawing was a radical departure from those expectations. The student followed the grid lines accurately, and the Spatial Mapping was consistent with no significant geometric distortions (Table 1, Criterion 3, Score 4).

- **Participant 004:** Participant 004 tried to use local Spatial Mapping in the freehand exercise but relapsed to unsupported holistic interpretation, substituting generic mental representations for anatomical reality (Table 1, Criterion 3, Score 2). The structural grid was the required mediating visual transfer mechanism that enabled the systematic scaling of the image and successful mimicry of the reference features by the learner (Table 1, Criterion 2, Score 3).

- **Participant 005:** The baseline Portrait Drawing for Participant 005 revealed deep misperceptions and shifted facial canons. When implementing the grid, the student made good use of the specific parameters for line positioning. The artefact (Panel D) has a convincing perceived proportionate likeness, which successfully overcame the beginner's fundamental mind-body duality (Table 1, Criterion 1, Score 4).

Phase 2 Results: Cognitive Process and Perceptual Shift

Evaluating a structural intervention is about looking at the internal phenomenological change in the novice practitioner (Alwynas & Abidin, 2023). The unassisted Observational Drawing task places a heavy cognitive demand on the beginner who is required to contend with the underlying mind-body dualism and holistic *Gestalt* perceptual biases. Data were obtained using the criteria indicated in Table 2. This data was the result of student self-reporting scales triangulated with instructor observational notes to assess the psychological mitigation of this cognitive overload. This phase is a measure of the contextual usefulness of the Grid-Based Drawing technique in artificially bypassing biases of active vision and increasing pedagogical confidence in core skill acquisition.

Participant-Specific Analysis of Cognitive Load and Perceptual Shift

In the context of the pedagogical setting of art education, to evaluate a structural intervention is to analyze the internal phenomenological change of the novice artist.

- **Participant 001:** Observational notes and self-report are consistent with Participant 001 being fully captured by cognitive overload (Table 2, Criterion 1, Score 1) during the unassisted effort and experiencing strong learning frustration and acute anxiety. The grid scaffold created a unique perceptual shift; the student reported much less fear and started to engage in the act of drawing as an emotionally manageable, systematic endeavour (Table 2, Criterion 1, Score 4).

- **Participant 002:** From a phenomenological point of view, Participant 002 first attempted an organic, unmeasured holistic visual interpretation (Table 2, Criterion 2, Score 1). The use of the structural intervention allowed the student to change their perspective and follow the structural coordinates, mathematically deconstructing the reference into digestible, localised portions (Table 2, Criterion 2, Score 3).

- **Participant 003:** Demonstrated low pedagogical confidence in their baseline drawing, reporting uncertainty regarding their ability to portray complex visual fields (Table 2, Criterion 3, Score 2). In the post-intervention drawing the student displayed excellent pedagogical confidence reporting that they knew that they were able to overcome their active vision biases with the drawing method and were therefore guaranteed direct task success (Table 2, Criterion 3, Score 4).

- **Participant 004:** The student reported structural friction and persistent cognitive fatigue during the unassisted task (Table 2, Criterion 1, Score 2). In application, the grid drawing method helped ensure balanced cognitive load and maintain relatively low levels of anxiety and baseline frustration during the visual tasks (Table 2, Criterion 1, Score 3).

- **Participant 005:** Participant 005 falls into global *Gestalt* biases regularly, redrawing existing symbols rather than coordinates in the freehand stage (Table 2, criterion 2, score 2). The structural structure enforced controlled Spatial Mapping. The observational results corroborate that the student had succeeded in breaking the complicated subject down into perfectly isolated pieces of visual information, thereby suppressing holistic face-processing bias (Table 2, Criterion 2, Score 4).

Discussion: The Contextual Efficacy of the Grid Method

These results provide a strong endorsement for the pedagogical efficacy of the grid as an instrumental tool for mediating the visual transfer of learning. The default for inexperienced artists is to rely on symbolic schemas, because the human visual system perceives face features as a *Gestalt* (Hayes & Milne, 2011; Brice, 2023). To expect beginners to unlearn their inherent perceptual biases without an intervening mediating framework is to commit a pedagogical fallacy (Brice, 2023).

The empirical data collected from Phase 1 (visual output) and Phase 2 (cognitive process) demonstrate that the grid is an evidence-based solution for educators to handle students' frustration and to achieve instant output success (Alwynas & Abidin, 2023; Anggraini & Camelia, 2022). This research does not argue that the grid is a catalyst for universal artistic mastery, but that it has bounded, contextual benefit. The grid, by recontextualising the act of drawing as a systematic mathematical transfer, is thus able to reduce cognitive overload, to break the practitioner's innate mind-body duality, and to generate a very coherent illusion of precision as seen in proportional similarity.

Practical Classroom Application and Scaffold Fading

To translate these empirical findings into actionable Art Education practices, educators must establish specific operational parameters for the Grid-Based Drawing intervention method. For the optimal execution of localized Spatial Mapping, the literature dictates that students require 40 minutes to 1 hour of non-interrupted teaching time per session; this duration is critical to allow the practitioner to fully navigate the cognitive shift and suppress verbal-mode interference (Edwards, 1997), although in this research, 2 hours was given per session. But more importantly, the dimensions of the spatial scaffold must be expressed relative to the complexity of the visual field under consideration, not the session time. The physical dimensions of the structural scaffold must be explicitly tailored to the complexity of the visual field.

Some students find grid drawings very challenging. This may be a reflection of some form of a learning disability, special needs, or learning ability. One strategy that might help them is to create a viewfinder that is the exact size of the square, so they can isolate one square at a time. A standard classroom format may optimally utilize a grid with squares of approximately 1 and 1.5 inches, while complex subjects such as detailed drawing use a 10x7 column matrix. Forms subject to extreme foreshortening demand significantly smaller, denser squares to effectively manage the increased cognitive load (Miyamoto, 2024). For this study, the students will have to draw on A3 drawing paper, and their references will come in printed A4 size. Importantly, in order to prevent dependency on scaffolds over a period of time, educators will have to employ a systematic process of scaffold fading. As students gain pedagogical confidence and mastery of the Drawing Technique, the heavy proportional grid will gradually decrease to a minimal scaffold, that is, a single vertical and horizontal crosshair (Edwards, 1997). Finally, the physical picture plane will be removed altogether, and the practitioner will move onto unassisted Observational Drawing utilizing their hands as a concept viewfinder (Edwards, 1997). Through such careful fading, the skills learned using the grid for local perceptual learning will be effectively transferred to the process of independent freehand Portrait Drawing (Anggraini & Camelia, 2022; Edwards, 1997).

SUGGESTIONS FOR FURTHER STUDY

The results of this qualitative study provide not only empirical support for the efficacy of structural scaffolds within context, but also important pedagogical and epistemological concerns that desperately need to be carefully investigated in the future within the framework of art education. The researcher would like to suggest the following directions for future research that would allow a further development of the theoretical frameworks presented here with the help of this research:

- **Longitudinal Investigations into Skill Transferability and Scaffold Dependency**

  The results of this study suggest that the Grid-Based Drawing method can effectively neutralise the beginner's active vision bias and ensure the success of immediate output by artificially regulating cognitive load. But the important threshold between the development of basic skills and the reliance on long-term methods is alarmingly under-explored. Future research should focus on long-term investigations to see if the compartmentalised visual transfer skills learned from grid-assisted Spatial Mapping eventually transfer to unassisted freehand skills. It is important to examine whether this specific Drawing Technique, when applied for too long by beginners, will inhibit the ability to experience the necessary cognitive struggle to develop internally independent, holistic facial processing once the structural scaffold is permanently removed from the Observational Drawing environment.

- **Quantitative Biometric Validation of Spatial Mapping**

  Methodologically, the study explicitly limited its evaluative metrics to subjective observer rubrics of perceived proportional likeness, recognising that qualitative evaluations are not scientifically able to definitively establish precise microscopic biometric integrity. The literature supports the fact that practitioners, even with localised visual scaffolding, impose systematic form distortions that are entirely outside of subjective awareness. Outcomes of this drawing approach should be further investigated by rigorous quantitative methods, such as Procrustes distance measurements and geometric morphometric analysis in future studies. This area is where the most sophisticated biometric techniques can assist. Researchers can make use of these tools to measure the exact mathematical coordinates of the resulting facial geometry and can explore whether the grid method is an illusion of accuracy simply for communicative purposes or if it actually corrects the microscopic anatomical misperceptions that are inherent to the novice observation.

CONCLUSION

In art education, the correct drawing of the human face is a serious educational problem for beginners. This qualitative study explores the interaction of cognitive load, perceptual bias, and instructional scaffolding in the early phases of Portrait Drawing. The literature established that the human visual system perceives human faces as an intact and indivisible *Gestalt*; thus, new art students are particularly prone to the influences of active vision biases (Brice, 2023; Hayes & Milne, 2011). Thus, unassisted Observational Drawing is a complex, cognitively demanding task, where beginners may utilize mental-symbolic representations or a conventional set of schematic structure before perceiving anatomical evidence (ArtWithTrista, 2022; Hayes & Milne, 2011).

The Grid-Based Drawing intervention was not intended as a conduit for universal artistic mastery, but strictly as a mechanism for mediated visual transfer. The results strongly confirm the contextual effectiveness of this Drawing Technique. The structural intervention deconstructs a cohesive reference portrait into abstract, localised two-dimensional coordinates, actively disrupting the inherent mind-body dualism of the beginner, as well as neutralising holistic *Gestalt* perceptive biases (Miyamoto, 2024; Steadman, 2024). The dual-phased qualitative analysis used in this study provides strong empirical evidence of pedagogical output and cognitive shift. Phase 1 visual inspection revealed that the grid scaffold forces a disciplined, segmented micro-focus that allows novices to achieve a highly cohesive Spatial Mapping, produce a convincing perceived proportional likeness (Anggraini

& Camelia, 2022; Hayes & Milne, 2011). At the same time, the phenomenological data from Phase 2 indicate that the perception of drawing as a disciplined mathematical transfer may significantly reduce the acute anxiety and frustration in learning that often accompanies complex observational tasks (Alwynas & Abidin, 2023; Huang et al., 2022).

However, in the interests of epistemological rigour, this research limits these pedagogical successes to a strict qualitative paradigm. It recognises the deep methodological conflict between subjective educational rubrics and absolute morphometric reality in that subtle, microscopic geometric distortions are often invisible to qualitative visual assessment (Hayes & Milne, 2011). Although the grid represents a useful means of ensuring instant success of the output by artificially controlling cognitive load, the issue of dependence on the scaffold in the long term is an important pedagogical concern (Huang et al., 2022). Overall, the results of this study suggest that the grid method is a very effective cognitive scaffold in the short term. It provides art educators with a proven intervention to manage beginner frustration, bridge the perceptual gap, and successfully guide novice practitioners through the overwhelming visual complexities of foundational portraiture.

The efficacy of the Grid-Based Drawing technique is ultimately dependent on its capacity to systematically shift cognition from the dominant symbolic verbal system (*L-mode*) to the visual-spatial network (*R-mode*) (Edwards, 1997) to synthesise these findings within the broader epistemological framework of Art Education. The historical uses of the matrix in the Renaissance, such as in the gridded frame of *Albrecht Dürer*, demonstrate its role as a mechanical device for accurate lateral translation (Miyamoto, 2024; Steadman, 2024). However, its current pedagogical significance necessitates stringent operational restrictions to prevent excessive reliance on the scaffold. A strict fading protocol is employed where the structural matrix is systematically reduced to minimal crosshairs before moving to unassisted freehand observation, ensuring permanent transfer of localised Spatial Mapping skills (Edwards, 1997). Finally, to confirm this qualitative perceptive transformation, future empirical investigations should go beyond the subjective classroom rubrics and employ geometric morphometric analysis to biometrically quantify the anatomical accuracy achieved during this cognitive transformation (Hayes & Milne, 2011). Thus, in this limited theoretical framework, the grid is not an artistic shortcut, but a rigorously calculated short-term mitigating instrument against active vision biases.

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ETHICAL APPROVAL STATEMENT

Institutional ethical approval was waived for this study by the School of Media, Art & Design at UNITAR International University, as the research design relied strictly on non-invasive, qualitative observational methods and pedagogical artifact evaluations in a standard educational setting, posing zero physical or psychological risk to participants. All adult participants provided explicit, voluntary informed consent prior to observation. To safeguard participant confidentiality, all observational field notes, student self-reports, and visual artifact rubrics were anonymized and stored securely.

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COMPETING INTERESTS

The author(s) have no competing interests to declare.

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) did not employ any of the Generative AI and/ or AI-Assisted technologies for Language refinement, drafting background section and did not perform any tasks of the technology.

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