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Analysis of Shading Techniques in Student Work in Drawing Course Form

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Abstract

This research is oriented to test students' competence in applying shading techniques in the Shape Drawing course through the identification of patterns of technical errors and the preparation of structured evaluation indicators. Through a qualitative descriptive approach with a visual content analysis method, this study examined the works of 33 students of the Fine Arts Education study program, State University of Makassar. The evaluation of visual performance is based on three essential parameters, including: line characteristics and pressure control, accuracy of tonal value gradations, and representation of the object's material texture. Empirical findings indicate that the majority of students have achieved an adequate level of proficiency in the aspects of line control (57.6% of the fair category) and the application of gradation (60.6% of the fair category) in constructing the volume of objects. However, elementary obstacles are still detected in the representation of texture and detail, where 54.5% of students are in the poor category due to the inability to interpret the physical properties of objects into scratches. This phenomenon is allegedly strong due to the low sharpness of visual observation, tactile hesitancy in deceiving the image media, and the limitations of line exploration exercises. As a pedagogical implication, this study conceptualizes the application of a transparent analytical assessment rubric to optimize the quality of reconstructive feedback in fine arts learning in higher education.

Keywords: Shading techniques, shape drawings, work evaluation, assessment rubrics.

INTRODUCTION

The integration of motor-technical development and pedagogical methodology is a key foundation that must be internalized by prospective educators in the Fine Arts Education Study Program. Cognitive-theoretical mastery of knowledge must be balanced with the implementation of valid practical skills as a representation of an art teacher's professionalism.(Simamora et al.,

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2023)One of the essential achievement parameters in this curriculum is reflected in the students' level of proficiency in producing realistic drawings. Realistic drawing essentially demands precise mimetic representation of objects, driven by sharp optical observation and synergized with mature motor regulation.(Mujiyono, 2015)This two-dimensional creative process is categorized as a high-level cognitive activity that combines the functions of visual perception, working memory processing, concentration, spatial navigation, and systematic motor execution.(Fan et al., 2023). Therefore, the activity goes beyond the limits of ordinary mechanistic exercises, but rather acts as an instrument for conditioning aesthetic awareness and spatial understanding that is vital for the articulation of students' creativity.

In realistic representational landscapes, the articulation of shading techniques acts as a crucial determinant in constructing the visual and aesthetic qualities of a work. This technique is applied as an exploratory instrument in manifesting form, spatial depth, and three-dimensional dimensions.(Angrini et al., 2025). Through the implementation of structured tonal value gradations, students are oriented to project the illusion of volume, texture characteristics, and lighting effects (chiaroscuro) to present an impressive and mimetic impression of the object's plasticity to its original form. The success of this hatching execution is inherently greatly influenced by the regulation of tool pressure (pressure control) and comprehensive mastery of the direction and intensity of lighting, which simultaneously strengthens the objective character of a sublimated work of art.

Although hatching techniques have been internalized into the Form Drawing course curriculum, clinical manifestations in the field indicate significant technical discrepancies in student work. Performance barriers that frequently emerge include weak pencil pressure control, discontinuity in tonal gradation transitions, and the inability to articulate the texture characteristics of object materials. The existence of these technical weaknesses tends to be persistent due to the limited identification of specific and documented errors during the assistance process. Evaluations carried out so far tend to be collective, emphasizing generalizations of common errors. This phenomenon indicates a substantial disconnect between academic conceptual understanding and psychomotor execution capabilities within the scope of fine arts learning.

This discrepancy requires a reconstruction of the evaluation mechanism that is oriented towards objectivity and measurability. This aligns with the urgency of implementing authentic assessment within the curriculum framework.(Akbar et al., 2016)Educators need evaluation instruments capable of generating comprehensive feedback for students. Subjective assessment practices based on fleeting impressions tend to create ambiguity for students in independently identifying weaknesses in their work. Conversely, standardizing measurable instruments has been proven to transform the assessment process into a more objective, fair, consistent, and transparent one.(Suwarno & Aeni, 2021)The absence of rigid indicators risks trapping the evaluation process in an impressionistic realm, making it difficult for students to precisely identify

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technical errors. Therefore, the urgency of developing specific assessment indicators—covering the dimensions of line quality, tonal value variation, and the articulation of techniques based on object characteristics—becomes inevitable. This systematic rubric conditioning can ultimately shift the conventional assessment paradigm toward accountable, transparent, and objective. (Tam, 2018; Ulfah & Budiwiwaramulja, 2019).

Based on the significance of this urgency, this research is oriented towards an in-depth investigation of students' competence in applying hatching techniques in the Form Drawing course. Through a comprehensive mapping of technical error patterns and the codification of structured evaluation parameters, this study is projected to be able to contribute substantive contributions to the expansion of assessment methodology in fine arts learning. The existence of empirical findings in this research plays a vital role as a basis for the formulation of accurate pedagogical actions (pedagogical treatment), in order to spur the escalation of the visual quality of student work while optimizing the efficiency of practical instruction in higher education environments.

RESEARCH METHODS

This study applies a qualitative descriptive approach through visual content analysis techniques, a method commonly implemented to examine student artifacts in the field of fine arts in order to comprehensively analyze the quality of students' mastery of techniques.(Wijntjes & Middelkoop, 2024). The primary data in this study comes from the work of students of the Fine Arts Education Study Program who are currently taking the Form Drawing course, which was collected using a purposive sampling technique. The main object of observation in this study is focused on the work of representation of inanimate objects (still life drawing), with the specification of visual material in the form of fruit composition arrangements.

Data collection was actualized through a triangulation strategy, which combines observation methods to record students' motor behavior during the shading process, documentation of work artifacts for visual analysis, and literature studies as a conceptual basis in developing technical assessment instruments. Analytical rubrics were implemented in this study due to their capability in mapping student performance into a more measurable competency scale for diagnostic purposes compared to holistic rubrics.(Kaldaras et al., 2022). The evaluation instrument includes three essential parameters, including: (1) line characteristics and pressure control, where the intensity of darkness and line thickness represent the level of pressure applied to the image media.(Safitri & Mashudi, 2017); (2) accuracy of tonal gradation, where the skill of realistic mimesis is measured based on the stability of the distribution of black, white, and gray values, as well as the application of coherent lighting logic in constructing the volume of objects(Hsiao-Ying, 2022); and (3) articulation of object texture. The dimensions of the perceptual space between hand strokes and natural surface characteristics are identified to facilitate the search for accurate images. The texture referred to in this context is limited to visual implied

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texture, namely the textural impression presented optically on a surface plane that remains flat.(Djonov & Van Leeuwen, 2011). The application of this analytical rubric facilitates lecturers to provide separate score quantification for each shading technique indicator, so that students obtain a more transparent mapping of visual competencies.

The data analysis technique in this study applies the interactive model of Miles and Huberman, which constructs a workflow through the stages of data reduction, data presentation, and drawing conclusions.(Paramasasti & Marzuki, 2025)In the reduction phase, students' visual artifacts were classified into three performance levels: high, medium, and low to identify typical technical error patterns. Furthermore, visual data were presented using an art criticism approach to analyze the formalistic aspects of the work, while validity tests were applied to ensure the objectivity of the analysis process. The operationalization of the work analysis adopted Edmund Burke Feldman's analytical framework structured into four logical stages:

1. Description: This stage requires precision in inventorying all visual components represented in the work, including the configuration of the main subject and the layout of the background without involving intervention or evaluative commentary. This approach ensures that the basis of art criticism rests on a foundation of pure and factual optical observation.(Tyas et al., 2020).
2. Formal Analysis: This phase is conducted by empirically analyzing the functional relationships between visual elements. Line integration, tonal value spectrum, compositional patterns, and textured surface qualities are analyzed in depth to reveal the visual characteristics and artistic coherence of the visual form.(Pujazon Patron et al., 2024).
3. Interpretation: This stage serves as a hermeneutical bridge to construct the significance of the work's meaning, implicit messages, and narrative content through the synthesis of descriptive data and the results of formal analysis. Through this approach, researchers can map the underlying ideas, thematic content, and psychological atmosphere communicated visually.(Tyas et al., 2020).
4. Evaluation: The concluding phase that integrates data from the description, formal analysis, and interpretation stages to formulate a comprehensive justification for the work's quality. This evaluation involves assessing technical effectiveness, identifying artistic strengths and weaknesses, and the relevance of the work's achievements to established competency indicators.(Tyas et al., 2020). The implementation of this phase is even able to go beyond the limits of formalistic analysis by linking it to contextual competence to construct the relationship between the work of art and the socio-political reality that surrounds it.(Broome et al., 2017).

RESULTS AND DISCUSSION

The primary data corpus in this study is derived from the analysis of 33 student-drawn artifacts representing still life objects in the form of fruit arrangements. Sample determination was

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carried out using the total sampling method in one class comparison to represent the individual capacity of students in applying hatching techniques comprehensively. Data validity and consistency were strictly maintained through the provision of standardized assignment instructions, in which students converted factual fruit objects that had been arranged directly by the lecturer. In exploring the three-dimensional dimensions and volume of objects, students were given technical attributions to apply hatching and cross-hatching methods. The standardization of the media instruments used included variations in pencil gradations with hardness levels of HB to 6B, which were applied on A3-sized sketch paper with a paper density of 200 gsm.

The preparation of the assessment rubric is oriented towards directing the objectivity of evaluation through the codification of criteria derived explicitly from the learning outcomes of the Drawing of Shapes course.(Susanti et al., 2023). The evaluation instrument applied in this study is analytical, which dissects each basic competency parameter in the hatching technique partially and specifically. After the implementation of the task experimentation, the quantification of student achievement is classified into three levels of performance, namely high, sufficient, and low categories. The distribution of these groups is based on three taxonomic parameters of the hatching technique, including: (1) Application of Hatching and Cross-hatching: The hatching method is articulated through parallel line strokes to construct tonal density, where the level of linearity density of the lines is directly proportional to the density of the resulting dark effect. Meanwhile, the cross-hatching technique manifests a stack of crossed line strokes to emphasize a denser shadow area.(Anggraini et al., 2024); (2) Analysis of Gradation and Volume: Gradation is positioned as a spectrum of tonal value transitions from light to dark intensity, which functions as a visual instrument to achieve plasticity of form as well as a convincing three-dimensional illusion.(Putra & Winarno, 2023); (3) Texture and Detail Analysis: The characteristics of the object's surface are realized through implied texture engineering using line stimulation, shape configuration, and light-dark manipulation.(Wango, 2024). In the context of form drawing, the quality of texture goes beyond the boundaries of conventional aesthetic elements; this aspect operates as a semiotic system that acts as a stimulant of meaning to communicate the material and tactile identity of the object to the appreciator.(Liu et al., 2015).

These three competency domains are then articulated into an analytical assessment rubric format to facilitate students in in-depth identification of their psychomotor achievements, while simultaneously optimizing lecturer efficiency and accuracy during the evaluation process. Conceptually, the rubric acts as a guiding instrument in constructing a structured assessment to represent the expected achievement targets for each assessment parameter.(Shodiq et al., 2025)Although the rubric taxonomy can be developed in an analytical format that measures each aspect partially or holistically, the analytical format chosen in this study is intended for error diagnostic purposes. Through this conditioning, this evaluation instrument is projected to be able to reflect the internalization of conceptual understanding accumulated by students in previous instructional stages.(Adela et al., 2025). As a form of implementation of these parameters, the

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following is an in-depth analysis of 9 representations of graphic works that were selected as representative samples for each assessment indicator:

Shading Technique Analysis (Line Quality and Pressure Control)

The parameters implemented to assess students' hatching strokes are based on the dimensions of line linearity and hand motor stability. In the high achievement criteria, students are assessed as being able to demonstrate mature motor regulation, as reflected in the consistent application of hatching. The resulting visual characteristics include excellent pencil pressure control, with clean, sharp line quality, and free from non-functional stroke buildup, thus presenting a precise visual impression. Furthermore, in the sufficient (moderate) category, students' visual performance indicates fluctuations in drawing tool pressure on several parts of the object's anatomy. This pressure instability implies uneven line density, although this deviation is still within reasonable aesthetic tolerance limits. Conversely, in the low category, the hatching strokes presented tend to show indications of tactile hesitation. This phenomenon is characterized by destructive stroke repetition (excessive overlapping), which results in distortion of line clarity and a decrease in the overall aesthetic neatness of the work.



Figure 1. High category work in the application of hatching techniques

Based on the results of visual observation, the representation of the work realized in Figure 1 is classified into the high category in terms of fulfilling the parameters of the hatching technique. The work reflects the maturity of technical execution through directed and consistent hatching strokes, which effectively construct the volume and three-dimensional dimensions of each anatomy of the fruit object and the folds of the cloth (drapery). Mastery of precise pressure control is proven to be able to produce smooth line gradation transitions, while eliminating the risk of excessive pencil graphite buildup that could potentially trigger a dull visual impression. The articulation of complex mimetic details in this work such as the character of the pear skin, the interweaving of the cloth fibers, and the texture of the rambutan fruit confirms the students' perceptual sensitivity to the representation of pseudo-textures (implied texture). In addition, the

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accuracy in identifying the position and orientation of spatial objects has been optimally synergized with the regulation of the pressure of the drawing tool.



Figure 2. Medium category in the application of hatching techniques

The visualization in Figure 2 indicates that the student is quite capable of capturing the physical characteristics of the observed object, although the quality of the resulting hatching strokes still places this work in the sufficient (medium) category. The symptom that emerges is the fluctuation of pressure control of the drawing tool that is applied unevenly to each object's anatomy. As an illustration, the hatching representation on the pear object shows the impression of a discontinuous visual texture, while on the watermelon object the tonal transitions presented are relatively smooth. Similar inconsistencies are also identified in the hatching strokes on the banana object. This motor regulation obstacle triggers the accumulation of excess graphite (overlapping) in several areas, such as the contrasting density stains on the papaya object. Conversely, in the foreground of the papaya object, specifically on the fabric element (drapery), hatching strokes that are too thin actually trigger the retention of blank paper areas (negative space) which risks reducing the harmony of the overall visual composition. Nevertheless, viewed from an instructional perspective, this work generally still meets the aesthetic tolerance standards as a fairly representative still life study.

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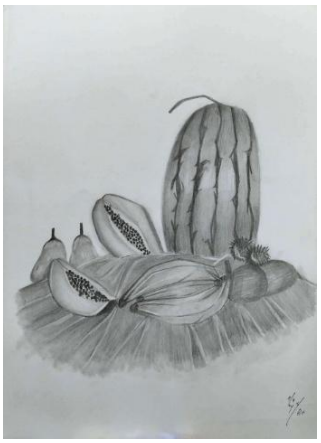


Figure 3. Low category in the application of hatching techniques

Based on a visual evaluation of its formal elements, Figure 3 is classified as low in the parameter of fulfilling the quality of hatching techniques. The application of hatching strokes in this work shows a tendency for inconsistent patterns and indicates tactile hesitation across almost the entire surface of the object, especially in the visualization of the fabric elements (drapery). The implication is that the representation of the fabric presents a rigid visual impression due to the absence of gradual transitions from pressure control of the drawing tool. In addition, excessive line repetition without mature motor regulation triggers destructive line stacking (overlapping). This technical obstacle ultimately causes the surface characteristics of the object's implied texture to fail to be defined and cannot be clearly articulated to the observer.

Analysis of Tonal Gradation and Volume Dimension.

Evaluation of the gradation and volume parameters is oriented to measure the student's capability in managing the range of light-dark tonal values to construct a three-dimensional illusion in a two-dimensional plane. In the high achievement criteria, students are assessed as being able to present smooth gradual transitions that produce a strong and convincing object volume. The spectrum of tonal values presented is comprehensively articulated, stretching from the core shadow area to the reflection of the light (highlight), so that the object of study appears prominent and has a weighty plasticity of form. Furthermore, in the sufficient (moderate) category, the configuration of the object's form has actually begun to be established, but the articulation of the tonal value range is still limited to the dominance of the mid-tone gray scale. This limited contrast between the illumination and shadow areas has implications for reducing the spatial depth of the object so that it appears somewhat flat. Conversely, in the low category, student work indicates a competency gap marked by a failure to project the volume dimension. The application of tonal values tends to be uniform (flat) without being accompanied by a clear mapping of the projection of the direction of light illumination, which results in the object only appearing as a static two-

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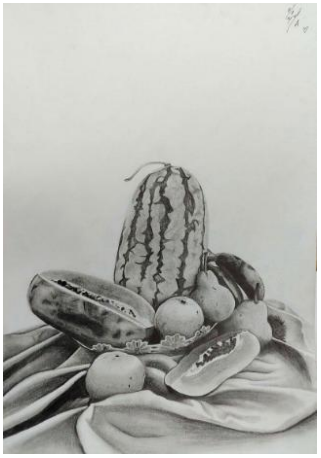


Figure 4. High category work in the application of gradation and volume

Overall, based on the results of visual observation, the artifact of the form image manifested in Figure 4 is classified into a high competency stratification in the gradation management parameter. The student successfully applied the transition of dark-light tonal values smoothly and consistently, which directly implicated the solid impression of volume built on each anatomical object of study. Each component of the still life depicted has reflected an accurate distribution of dark-light, which is logically aligned with the position and orientation of the lighting source projection. This mature instructional pattern makes the entire object defined firmly and convincingly as a spatial form in three-dimensional space (trimatra).

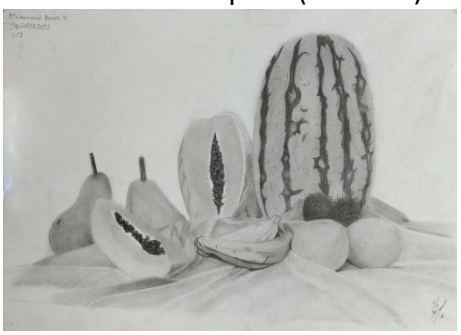


Figure 5. Medium category work in the application of gradation and volume

The visual representation in Figure 5 represents a work classified as moderate. Although the articulation of linearity has been able to present a clear object configuration, the application of tonal values in this work is still concentrated in the middle gray spectrum. The identified weakness is reflected in the low contrast between dark and light areas, where the projection of spatial depth areas and the most prominent parts of the object have not been optimally realized

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to achieve maximum form plasticity. As a result, the impression of the object's mass and structural weight seems less solid. Nevertheless, some visual compartments—such as the folded elements of the fabric (drapery)—have actually begun to show a sense of spatial depth. However, the limited manipulation of the tonal value range ultimately still reduces the structural dynamics between visual elements at a macro level.



Figure 6. Medium category work in the application of gradation and volume

The visualization realized in Figure 6 is classified into a low ability stratification due to a competency deficit in constructing the dimensions of the object's volume convincingly. This phenomenon is identified through the application of a range of tonal values that tend to be homogeneous, linear, and flat on the majority of natural surfaces of objects. Students are indicated to experience limited perceptual sensitivity in mapping the projection and orientation of the direction of factual light illumination. Consequently, there is a reduction in the three-dimensional impression in this form drawing work, which causes the anatomical boundaries of the object to experience spatial distortion so that they are integrated biasedly and blend with the background plane.

Pseudo-Texture Analysis and Object Details.

The evaluation of texture and detail parameters is oriented to measure students' capabilities in projecting the surface characteristics of the original object's material into the visual field. In the high achievement criteria, students are assessed as being able to comprehensively articulate implied texture details and integrate the logic of light reflections (highlights), so that the resulting work is able to achieve mimetic visual plasticity. Furthermore, in the sufficient (moderate) category, students' work shows an effort to present the surface quality of the object, although the technical execution applied is still superficial. The presented texture details tend to be general (generic), thus failing to construct a clear visual contrast between the rough and smooth character of the material. Conversely, in the low category, students are identified as experiencing a

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competency deficit characterized by a failure to project the original tactile character of the object. This phenomenon is reflected in the application of uniform (monotonous) hatching strokes across the entire surface of the object without being accompanied by adaptive detail stimulation to characterize specific textures.



Figure 7. High category work in the application of texture and detail

The visualization realized in Figure 7 represents an example of realistic work in the Form Drawing course executed through a mature mastery of shading techniques, thus being able to accurately articulate the texture characteristics of each observed object. The quality of the representation of the pseudo texture (implied texture) and details in this work is classified into the high category and has succeeded in achieving a strong degree of mimesis. This success is identified from the sharp contrast of textural handling between the watermelon, banana, and papaya objects, which specifically reflects the physical identity of each fruit material. Similarly, in the visualization of the rambutan and orange objects; the combination of the student's manual strokes has been optimally synergized with an awareness of light reflections (highlights) and logical cast shadow projections, which simultaneously construct the illusion of volume and solid spatial depth.



Figure 8. Medium category work in the application of texture and detail

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The visual representation in Figure 8 indicates that the student has conceptualized the stimulation of texture and detail at an adequate level, so that this work is classified into the criteria of sufficient (moderate) achievement. In this work, a structured effort is identified to communicate the quality of the material surface on the objects of watermelon, banana peel, and drapery, although the articulation still requires strengthening of deeper technical exploration. The differentiation of pseudo textures (implied texture) between objects has not been able to construct a clear visual contrast. As a result, the simultaneous correlation between light intensity (highlight) and shadow (shadow) on the surface of the natural object is not fully optimal in achieving a representative and detailed degree of material mimesis for the observer.



Figure 9. Low category work in the application of texture and detail

The visual representation of the work is classified into a low ability stratification in the parameters of texture and detail application. The obstacles that emerge are marked by a competency deficit in the mimesis of the surface material characteristics of each study object, even though the configuration of the outer shape (outline) has proportionally begun to approach the model of a natural object (still life). Based on visual analysis, the entire anatomy of the fruit object is depicted using a uniform shading technique with homogeneous (monotonous) stroke articulation, without any specific detail stimulation to emphasize the physical identity of the object. In addition to the weak differentiation in translating the quality of the rough or smooth surface of the material, the regulation of lighting (highlights) to construct the illusion of volume and depth of space is also identified as very limited in this form drawing work.

After conducting a partial comparative analysis of each student's drawing, the results of the value codification were obtained which represented the students' macro psychomotor capabilities in applying the shading technique. In order to present a structured and comprehensive theoretical description of the level of achievement of these competencies, the researcher quantified the empirical data into a summary table format of the students' visual performance

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achievements as follows:

Table 1. Results of student work assessment.

Assessment indicators	Very good %	Enough%	Not enough%
Shading techniques (line and pressure)	18.2%	57.6%	24.2%
Gradation and volume (value)	21.2%	60.6%	18.2%
Texture and detail	12.1%	33.3%	54.5%

Based on the data tabulation results above, it can be concluded that in general, student competencies are dominated by the ability to regulate lines, control pressure (pressure control), and the application of gradation in constructing the dimensions of the volume of objects. This quantification indicates that students have had adequate basic internalization related to hatching techniques, although they still need intensified practical training to develop a mature level of skills. In contrast, the most crucial competency gaps were identified in the parameters of mastery of pseudo texture (implied texture) and object details, where the prevalence of the less category recorded a figure exceeding 50%. This phenomenon confirms the existence of perceptual obstacles for students in translating the physical characteristics of the original object material, so that their visual orientation tends to be stuck in the global (macro) shape configuration.

Referring to the results of a comprehensive analysis of all artworks, four common typologies of persistent errors were identified. First, there is a student's tactile hesitation in applying maximum pressure with the drawing tool, which results in the chiaroscuro contrast effect not being read optimally. Second, there is a discontinuity in the tonal gradation transition during the gradual value melting process from the shadow area to the bright illumination. Third, the articulation of the artificial texture presented is still generic and not yet adaptive to the specific characteristics of each still life object. Fourth, the student's spatial sensitivity to the logical projection of the direction of the cast shadow is still low.

The persistence of students' weaknesses in applying hatching techniques is not solely triggered by limited psychomotor coordination (hand skills), but rather is rooted in the low intensity of visual observation of the micro-details of the observed object. This phenomenon is in line with the premise that the sharpness of perceptual attention is a fundamental foundation in the activity of drawing forms.(Mujiyono, 2015)Another determinant factor that emerged was the limited internalization of the characteristics of the drawing medium, which resulted in the emergence of symptoms of tactile hesitation and rigidity of strokes in the majority of the works. This technical deficit is strongly suspected to be the result of the minimal quantity of motor habituation training.(Kanita et al., 2024), including the absence of a warm-up exercise stage in the form of line exploration (gestural drawing) before students are oriented to drawing objects with a high level of structural complexity.

Methodologically, the effectiveness of instructional demonstrations in fine arts education is absolutely supported by the availability of relevant, planned materials and media, and has systematic operational stages, in order to facilitate students in observing and internalizing

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techniques before the work production stage begins.(Apriliani & Zulkifli, 2021)This condition has crucial instructional implications that the renewal of learning strategies in Form Drawing courses must allocate a more proportional portion of time for explicit technical demonstrations and analysis of the characteristics of object materials. This preventive measure is important to ensure that students have a solid technical capability of hatching before applying it to the two-dimensional field.

CONCLUSION

This study concludes that the level of student competence in applying shading techniques in the Form Drawing course is generally concentrated in the sufficient category. This moderate achievement reflects that students have mastered basic mechanical skills in line regulation indicators and the application of gradation to construct the volume dimensions of objects. However, the most significant competency gap was identified in the parameters of pseudo-texture representation and object surface details, where the majority of students (54.5%) were stuck in the insufficient category due to the tendency to prioritize macro-form configurations and ignore the specific material characteristics of the model. This psychomotor deficit was triggered simultaneously by low visual observation attention acuity, tactile hesitation in applying drawing tool pressure to build chiaroscuro contrast effects, and limited quantity of media exploration exercises. As a logical implication, the implementation of a systematic and transparent analytical assessment rubric instrument plays a crucial role in providing objective feedback while guiding the reconstruction of the technical details of students' work more specifically.

SUGGESTION

Based on empirical identification of technical and conceptual barriers experienced by students, this study formulates several strategic instructional recommendations that are projected to escalate the quality of learning outcomes in the Form Drawing course. The tactical formulation is realized through: conditioning preconditioning motoric exercises (manual dexterity), intensification of the implementation of structured demonstration methods directly by teachers, enrichment of teaching modules based on analysis of object material characteristics, optimization of peer-review using analytical rubrication instruments, and integration of portfolio documentation of students' work processes periodically.

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