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A Comparative Study on the Use of the Copy Method and Memory Training Method in Teaching Mythological Elements

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ABSTRACT

This study aims to conduct a comparative investigation into the teaching of mythological elements using the copying method versus the memory training method**.** The study employed a quasi-experimental design with non-equivalent groups and pre-test and post-test measures. The study group consists of 11th-grade students enrolled at Van Fine Arts High School and Bitlis Fine Arts High School during the fall semester of the 2024–2025 academic year. The research focused on figurative painting, charcoal drawing technique, five mythological elements, the provinces of Bitlis and Van and the Fine Arts High Schools in these provinces, Kubadabad Palace, and the Anatolian Seljuk civilization, and was limited to a three-week period. During the data collection process, a rubric was used to evaluate the students' visual art works. For data analysis, the data obtained from the works—which were scored by three experts according to the rubric—were analyzed using the SPSS program. It was determined that the obtained data did not meet the necessary assumptions for parametric methods; therefore, the non-parametric Wilcoxon Signed-Rank Test and Mann–Whitney U test were used in the analysis process. To determine inter-rater reliability in the scoring of student outputs using the rubric, the data were examined via ICC analysis. For content validity, the opinions of three subject matter experts were sought; to gather evidence for construct validity, the upper–lower group method was applied to determine whether the items could distinguish between individuals at different levels of the measured trait, and the differences between the groups were analyzed using an independent samples t-test. According to the research findings, a significant increase was observed in students' final application scores following the implementation of both methods. However, when the difference scores between the groups were compared, no statistically significant difference was found. This result indicates that the copying method and the memory training method have a similar level of impact on students' artistic development.

Keywords: Visual arts education, Memory training method, Copy method, Mythological elements, Visual perception.

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Introduction

In educational institutions, the aim is to facilitate learning by imposing a large volume of information on students. However, the fundamental goal of the educational process is to ensure that the individual makes learning permanent and is able to mentally structure the information. In this regard, art education plays a significant role. It is believed that the various teaching methods used in art education have a significant impact on students' skills such as comprehension, perception, encoding, and creativity.

The use of art and art education as a teaching method across all subjects in the curriculum enhances the retention of information in long-term memory in addition to having a positive influence on student motivation and achievement levels (Rinne et al., 2011). According to many educators, a quality teaching process should not only encompass the transmission of information but also help students learn how to recall, think about, encode, and learn information (Weinstein and Mayer, 1983). Memory is not merely a mechanical storage place for information but a mental structure that processes, organizes, and attributes meaning to information. The methods applied during the learning process are fundamental factors that direct the student's attention, encode information in the mind, and strengthen its retention in memory. An effective method does not merely involve acquiring information; it ensures that information is processed to form a meaningful structure in memory. In this respect, the retention of learning is related not only to the form in which information is presented but also to how it is processed, perceived, and structured in the mind. This necessitates questioning the effectiveness of teaching methods on learning. The research problem focuses on the determination of which teaching method is most effective in achieving these outcomes and to what extent the methods used in the teaching process stimulate the student's cognitive processes. Two teaching methods believed to be effective in achieving these outcomes will be examined to analyze their impact on learning. Accordingly, the memory training method and the copying method will be examined as effective approaches for students to acquire artistic and cognitive outcomes, and their effects on learning will be compared.

Memory is defined as the area where information acquired through thought and experience is stored throughout an individual's life. It is divided into three categories: sensory memory, short- term memory, and long-term memory. Sensory memory refers to the neural activation triggered by stimuli. (Bacanlı, 2001). Information within sensory memory, which has a very large capacity, is lost or displaced by new incoming information if it is not processed (Köksal, p. 34, 2013). Information from sensory memory and the sensory organs is sent to short-term memory. In fact, short-term memory is our immediate mind. For this reason, it is also referred to as *working memory* (Bacanlı, 2001). By processing and making sense of information, short-term memory demonstrates that learning occurs at this stage. It is a structure that sends learned information to long-term memory and can retrieve it when needed. The process of linking new information with previously acquired knowledge and giving it meaning also takes place in this memory (Köksal, 2013). Long-term memory, on the other hand, transforms existing information into an active structure, facilitating its conversion into behavior (Yapıcı and Yapıcı, 2005).

The application of methods that move the student away from a passive recipient role and support visual perception can be said to not only enhance the durability of learning but also strengthen the richness of imagery.

The memory training method aims to enrich imagery, encourage interpretation, and utilize artistic examples in the learning process. Newly acquired information is integrated with the individual's prior knowledge and experiences. This process not only enriches memory images but also supports the development of the motor skills necessary for accurate drawing. In the application of this method, the artwork is displayed for a specific period and then removed from the environment. The student attempts to draw the artwork from memory. The artwork, which is shown and removed at specific intervals, follows a process aimed at copying it from memory. The primary objective of this process is to enrich the student's mental images. The primary goal of memory-based instruction is not to produce an exact replica or a perfect copy, but rather to help the student develop their own interpretation (Yılmaz, 2010).

The memory-based teaching approach facilitates recall and strengthens memory by ensuring that information is encoded in a meaningful way during the learning process (Kozmus and Kozmus, 2023). It is noted that this approach yields more effective results compared to traditional methods. Additionally, it is stated that this approach plays a significant role in the understanding and encoding of information through visual and verbal cues (Mohd Nazri et al., 2016).

The copying method is an approach aimed at producing simple, quick, and accurate drawings to meet growing needs (Yolcu, 2021). In contemporary art education, copying refers to the reproduction of an exact replica of something. Copying is implemented using various techniques such as tracing, dividing into squares, and transferring onto tracing paper. In this process, the formal characteristics of the composition are transferred and the work is completed by coloring it in a manner faithful to the original. In another form of application, the work is produced exactly as seen from the front. In this method, the artwork is constantly present in front of the person making the copy. In such copying exercises, the individual's prior experiences and information stored in memory have no influence on the process. The person making the copy follows exactly the path that another person has taken for their own purpose (Yılmaz, 2010). The copying method is not considered an end in itself in art education but rather a tool that supports the teaching process. When used appropriately and correctly by the teacher, it can serve as a developmental and transformative method for the student (Kırışoğlu, 2019). In order to present content that is both engaging and meaningful to students when comparing the effectiveness of these methods, mythological elements from the Anatolian Seljuk civilization were selected. It is believed that the strong symbolic structures and narrative richness of mythological elements can leave more lasting impressions in the student's mind. The Anatolian Seljuk civilization, which holds a significant place in Turkish cultural history, stands out not only for its architectural and political legacy but also for its cultural structure enriched with symbolic and mythological elements. It is considered meaningful to address the mythological elements of this civilization in educational processes, both from the perspective of art history and in terms of cultural transmission.

The Seljuks reflected the figurative style—which the Turks had maintained across various artistic fields since Central Asia as a reflection of their ancient beliefs and way of life—in the tiles adorning their palaces and pavilions. The Anatolian Seljuks, who held a significant cultural position among the Turkish states established in Anatolia, created a powerful art form that imbued the region with a Turkish identity (Yılmaz, 1999). The figurative tiles found in Anatolian Seljuk palaces are regarded as an important component of the art world within

Turkish culture, one of the world's most ancient and rich cultures (Yılmaz, 1999). The finest examples of motifs and figurative art belonging to the Anatolian Seljuk civilization can be seen in the wall tiles of the Kubad Abad Palace (Koçer, 2024). The Kubad Abad Palace was commissioned by I. Alaaddin Keykubat, the Anatolian Seljuk ruler who ushered in the most glorious era of his reign (Oral, 1953). The tiles of the Kubad Abad Palace, having survived from the Seljuk period to the present day, reflect the imagination of the people living at that time and offer glimpses into their daily lives. Along with their rich content, depictions of supernatural creatures evoke pre-Islamic Central Asian Turkic art, directing attention toward the mythological values and cultural heritage offered by this culture (Arık, 2000). The sphinxes, sirens, dragons, two-headed eagles, and griffins depicted on the tiles—mythological creatures believed to possess supernatural powers—carry protective and symbolic meanings (Kuban, 2008). Supernatural creatures are defined as imaginary beings created by combining different body parts belonging to human and animal figures. Two distinct approaches are observed in the depiction of mythological elements. The first involves figures such as sirens, sphinxes, and griffins, created by combining parts from two or more living beings. The second approach involves transforming the natural structures of living beings into an unrealistic appearance and adding imaginary elements to them. Depictions of eagles with two heads, pointed ears, teardrop-shaped eyes, or palmette-shaped tails serve as examples of this and reflect the characteristics of the medieval animal style. (Yılmaz, 1999). The figurative depictions, botanical decorations, and mythological representations in the palace provide significant clues regarding the intellectual and cultural structure of the period. In this context, the Kubad Abad Palace tiles of the Anatolian Seljuk civilization, with their rich repertoire, form the sample group of this study.

Furthermore, addressing such cultural heritage elements as a subject matter facilitates the student's connection to the past, making the learning process more meaningful. Cultural heritage elements constitute the most important value judgments an individual possesses. Mythological elements, on the other hand, serve as powerful cultural heritage tools that leave lasting impressions in students' minds through their meaning-laden imagery. Incorporating such content into educational curricula helps students establish cultural connections and develop a sense of belonging. The fact that mythological elements are an effective subject in the development of students' visual perception, creativity, and richness of imagery is among the primary reasons for addressing these elements. It is believed that, as meaning-laden images that stimulate the imagination and strengthen attention skills, they make significant contributions to the learning process.

The literature contains various studies examining the impact of different teaching methods in visual arts education on students' learning processes. These studies indicate that memory training and the copying method contribute to the subject matter and produce positive effects.

For example, in a study by Novellino et al. (1986) examining the effect of the copying method on the learning process, it was concluded that it had a positive effect on students' ability to recall information, while Güvenilir and Yılmaz (2017) note that the memory training method strengthens students' visual perception and creativity skills and enables them to effectively reflect the visual. İneç (2002), however, argues that while the copying method is generally not preferred by teachers in elementary school Art and Crafts classes and is often viewed negatively, it can serve as an effective tool for the development of line drawing skills. In contrast, İnceağaç (2022) notes that in original printmaking education, the copying method significantly contributes to students' ability to interpret works belonging to Contemporary Art movements and develop their own original interpretations, and highlights that students develop skills in interpreting through their subjective perspectives, simplifying, and creating compositions suitable for design by copying. Kaya and Çevik (2020), on the other hand, concluded that memory-focused activities both strengthen students' ability to recall information and make the learning process more enduring. What distinguishes this study from others in the literature is that it examines the memory training method and the copying method within the same study, comparing their effects on students' visual art skills. There are insufficient studies in the literature that evaluate these two methods together. Based on the premise that both methods can contribute to cultural heritage, this study aims to determine which method is more effective in conveying our own cultural assets and ensuring that knowledge becomes permanently retained in memory, thereby contributing to the existing body of literature.

The purpose of this research is to carry out a comparative study based on the copying method and the memory training method in the comprehension of mythological elements. In line with this objective, it has been aimed to unveil the difference regarding the following sub-objectives comparatively:

1.1. I. whether there is a significant difference between the pre-test and post-test results of Group I,

1.2. II. whether there is a significant difference between the pre-test and post-test results of Group II,

1.3.To present a comparative analysis of the differences between the pre-test and post-test results of Group I and those of Group II.

Method

Research Model

The "nonequivalent groups pretest–posttest quasi-experimental design" was used in the research methodology. Experimental research involves studies conducted to determine how effective a potential intervention might be in solving a problem under controlled conditions using a systematic method (Özmen, 2015). An experimental model is a scientific research method based on systematically varying and applying the independent variable to determine its effect on the dependent variable. In this process, the researcher strives to control all variables that could influence the experimental outcome, thereby aiming to predict the results in advance (Zubair, 2022).

In experimental research, data are typically collected through pre-test and post-test administrations. The pre-test is administered to the experimental and control groups before the experimental intervention begins, with the aim of determining the groups' baseline levels. When necessary, this procedure also helps ensure statistical equivalence between the groups. The post-test, on the other hand, is administered to the same groups using the same measurement instrument after the intervention is completed. Based on the data obtained from the pre-test and post-test, both changes within the groups and differences between the groups are examined, thereby evaluating the effectiveness of the experimental intervention. Additionally, the groups' development before and after the intervention, as well as the changes they exhibit relative to one another, are compared (Özmen, 2023).

It can be said that the most distinctive feature distinguishing experimental research from other research types is the researcher's ability to directly intervene on the independent variable. While there are various designs of the experimental method, in practice, the multi-group design—which typically involves at least two groups—is most commonly preferred. Experimental designs are classified into two main groups based on the number of participants: two-subject and single-subject designs. In experimental research, however, the focus is primarily on multi-subject design types, and this design is the most frequently used in practice (Özmen, 2015). When experiments are conducted methodologically in a manner appropriate to their purpose, no other scientific method provides such a high level of confidence regarding causal relationships between variables. From this perspective, findings obtained from experiments constitute a significant portion of the body of knowledge in all scientific disciplines, particularly in the social and behavioral sciences (Denson and Anderson, 2023).

Since classes in educational research are pre-established by school administrators, it is not possible to assign students to be included in the study to the experimental and control groups in a completely unbiased manner. For this reason, researchers randomly determine which of the existing classes will serve as the experimental group and which as the control group. This design, in which participants are included in the study through pre-formed groups, is defined as a quasi-experimental model and is widely used in educational research. The key feature that distinguishes the quasi-experimental model from the fully experimental model is whether or not participants are randomly assigned to groups (Özmen, 2023). Similarly, in studies where there is no control group and multiple experimental groups are involved, the use of pre-existing groups as experimental groups without altering their structure is also considered a quasi-experimental approach (Şimşek, 2018).

In this study, the students were divided into two groups, and a pre-intervention was administered to both groups prior to the intervention to determine their initial levels. A test was conducted to determine whether there was a significant difference between the pre-test scores of the two groups; it was found that there was no significant difference between the groups, and the score ranges obtained by the groups on the pre-test were also very close to one another. Therefore, the groups were assumed to be homogeneous.

The memory training method was applied to Group I at Van Fine Arts High School, while the copying method was applied to Group II at Bitlis Fine Arts High School. At the end of the implementation process, both groups completed a final exercise. The resulting works were evaluated according to established criteria, and the impact of the methods on the students' visual arts skills was examined by comparing the differences between the groups' pre- and post-exercise results.

Limitations

This research was conducted within certain limitations. The study is limited to the fall semester of the 2024–2025 academic year and includes 11th-grade students enrolled in Fine Arts High Schools in the provinces of Van and Bitlis. As such, it has low statistical power given the current student populations at both high schools. The study examined five mythological elements associated with the Anatolian Seljuk civilization (the siren, the sphinx, the griffin, the dragon, and the double-headed eagle). These elements were analyzed through the tiles of the Kubadabad Palace. The practical sessions were conducted using the pencil-and-ink technique as part of imaginative art activities over a three-week period. The study group consisted of a total of 38 student: 22 students in group I and 16 in group II. Given these limitations, the findings must be evaluated solely within the framework of the specified sample, content, and methods.

The Research's Implementation Process

To conduct the study, the necessary permissions were first obtained from the Van and Bitlis Provincial Directorates of National Education, and in accordance with research ethics principles, school administrations and subject teachers were informed about the study's purpose, scope, and implementation process. The study group consisted of 22 students in Group I (Memory Training Method) and 16 students in Group II (Copy Method). The research process was conducted for both groups at different time intervals, following the same implementation steps.

For the study, five mythological elements—the siren, the sphinx, the griffin, the dragon, and the double-headed eagle—were selected from among the rich tiles of the Kubad Abad Palace. In the first phase of the application, students were asked to create a written narrative focusing on these mythological elements based on their prior knowledge, without being given any specific information about them. Subsequently, based on the written narratives they prepared, both groups were given a preliminary (imaginative) exercise that included all five mythological elements. Following the preliminary exercise, the Memory Training method was applied to Group I, while the Copy method was applied to Group II. During this process, students were asked to draw the five specified mythological elements in accordance with the application principles of the respective teaching method. In Group I, where the Memory Training method was applied, each mythological element was shown to the students individually via projection. While examining the visuals, the meaning of the elements and their visual characteristics—such as color, shape, texture, and movement—were evaluated using a question-and-answer technique. The aim was to encourage students to examine the visuals carefully, notice details, and mentally structure them. The "What's There, How?" game implemented at this stage is based on the visual perception education approach developed by Ateş and Yılmaz (2024). This approach aims to focus students' attention on visual elements, help them distinguish features such as color, shape, texture, and movement, and evaluate these features in terms of how they differ from similar ones. Conducted using a question-and-answer technique, this process aims to develop students' visual perception and enable them to transform their impressions into original artistic works based on their own interpretations. Indeed, it is noted that students who received the same training were able to produce distinct visual narratives based on their own perceptions and interpretations when they encountered the same mythological elements again.

After the images were projected individually, they were briefly turned off, and students were asked to transfer what they could recall onto paper within 5–7 minutes. While the drawing process continued, the images were re-projected for approximately 8–10 seconds, allowing

students to notice details they had missed or had difficulty recalling. The images were then turned off again, and the students were asked to complete their drawings based solely on the information retained in their memory. The same procedure was applied separately for each of the five specified mythological elements. In the "Copy" method applied in Group II, however, the mythological elements were kept visible via projection so that the students could see them continuously. The students were asked to copy the images exactly as they observed them. The visuals were not hidden during the activity; however, a question-and-answer session regarding characteristics such as color, shape, texture, and movement was conducted to direct the students' attention to these visual features. In this way, the examination of visual features was ensured in both groups. After the completion of the instructional process, both groups were asked to complete a final (imaginative) activity. In the final exercise, students were asked to create a new imaginative work incorporating five mythological elements, as well as the knowledge and experiences they had gained during the training period. In this way, the pre-exercise and final exercise works were compared to evaluate the changes students demonstrated at the end of the instructional process. At the conclusion of the study, a total of 76 visual art works—comprising the pre-exercise and final exercise works of the 38 students in Groups I and II—were included in the evaluation.

Study Group

The study group consists of 11th-grade students enrolled at Van Fine Arts High School and Bitlis Fine Arts High School during the fall semester of the 2024–2025 academic year. The study includes a total of 38 students, 22 students from Van Fine Arts High School (Group I) and 16 students from Bitlis Fine Arts High School (Group II).

Table 1. Distribution of the study group by school and gender

School	Group	Grade	Female (n)	Boys (n)	Total (n)
Van GSL	Group I	11	9	13	22
Bitlis GSL	Group II	11	10	6	16
Total					38

As shown in Table 1, Group I comprises 57.9% (n=22) of the study group, while Group II accounts for 42.1% (n=16). In terms of gender distribution, Group I consists of 9 female and 13 male students, while Group II consists of 10 female and 6 male students. In total, there are 19 female students and 19 male students across both groups. In this context, it can be said that the gender distribution is balanced. The groups were determined in accordance with a purposive sampling approach. The students are 11th graders, and their ages generally fall within the 16–17 age range according to the Ministry of National Education's grade-level standards.

Data Collection Tools

The Picture Evaluation Scale used in the scoring of this study was developed based on the assessment tool created by Yılmaz and İnceağaç (2017) in their study titled *"Development of a Graded Scoring Rubric to Determine the Effect of Literary Works in Visual Arts Education Practices*." The opinions of three subject matter experts were sought during the development of the rubric. The rubric was revised by removing the items *"Unity and visual continuity, Expression of movement, use of color, Attention to detail, Creative approach (original expression), Completion of the work, Cliché/template* elements" and adding the items *"Narration, Form, Line, Mark*." Each visual art work was evaluated by three subject matter experts, who scored it on a scale of 1 to 5 based on seven criteria (richness of imagery, composition, expression, form, line, place, and texture).

The “Graded Scoring Key” used in this study was developed based on Haladyna (1997).

The developmental stages of the graded scoring rubric, according to Haladyna (1997), are listed below:

1. Determining the purpose and rationale for using the scale
2. Clearly defining the criteria to be evaluated
3. Deciding which scale to apply (holistic-analytic)
4. Creating a draft of the grading scale
5. Making revisions
6. Including items for trial purposes
7. Evaluating student performance using a rubric
8. Determining the consistency of raters and the reliability of ratings
9. Making revisions to the items for future use (Haladyna, 1997).

The research data were obtained through pre-test and post-test studies conducted during the implementation process. In the pre-test, students in both groups were asked to create imaginative drawings without being given any prior information. Subsequently, the groups received instruction on the subject; in the groups where the memory training method and the copying method were applied, the studies were conducted by addressing mythological elements separately. The drawings obtained from the post-test conducted at the end of the process were collected as data.

Table 2. Graded Scoring Key

Graded Scoring Key	1	2	3	4	5
Richness Of Imagery					
Composition					
Narration					
Form					
Line					
Place					
Value					

Richness Of Imagery: The term "image" (TDK) is defined in three different ways. Things conceived in the mind and desired to be realized can be defined as imagination. General appearance or image
(1). The representation of an object perceived from the external world through the senses and reflected in consciousness can be defined as a vision or image (2). Additionally, objects and events that emerge in consciousness without being tied to any sensory stimulus are also expressed as dreams, visions, or images (3) (TDK, n.d.).

Composition: Composition can be defined as the process of arranging the elements that constitute a work according to specific order and principles; the product resulting from this process also constitutes the composition (Yılmaz, 2009).

Narration: In both two-dimensional and three-dimensional compositions, there must be a relationship of closeness and unity among the elements included in the subject and in the

arrangement of these elements. This unity must extend throughout the entire composition (Yolcu, 2021).

Form: Form reveals the qualities of an object in terms of its outer contours. Areas with width and height are referred to as forms. Forms can be two- or three-dimensional. If the forms in images consist solely of width and height, they are considered two-dimensional, and this also defines the concept of form. When the effect of depth is added to width and height, the third dimension emerges, and this is generally referred to as form (Yılmaz, 2009).

Line: A line is formed by the arrangement of points. The movement of a point in a specific direction creates a line. In this sense, the line is considered one of the most fundamental expressive tools in visual arts (Yılmaz, 2009). The line, which forms the foundation of pictorial works, is also an important visual expressive tool (Buyurgan & Buyurgan, 2020).

Place: In painting, place can be arranged to create a two- or three-dimensional effect. The elements that make up the composition can evoke a sense of place by being positioned to create the illusion of a third dimension, and they also serve as a background against which the depicted elements are set. In short, place can be understood as the totality of relationships between the object and the background. That is, it is the area surrounding, beneath, above, or between objects; it is the ground or background upon which objects are situated (Yılmaz, 2009).

Value: Differences in tone perceived on a surface are referred to as value. For a form to possess a unified value, its tonal quality must be distributed homogeneously across the surface within certain boundaries. Every color has a value. In this context, it can be stated that every object has a color, and when evaluated in terms of light, dark, and mid-tone values, the color of an object generally corresponds to one of these three tonal ranges (Yılmaz, 2009).

Findings Regarding Reliability Analysis

To ensure the reliability of the rubrics, inter-rater agreement must be considered (Moskal and Leydens, 2000). In this study, the Intraclass Correlation Coefficient (ICC) method was used to determine rater reliability. In ICC analysis, a total of 10 different ICC types are defined based on combinations of measurement models (one-way random, two-way random, and two-way mixed effects), effect types (random/fixed), and agreement types (perfect agreement or consistency). In this study, the two-way mixed effects model was preferred because the raters were specific and fixed individuals within the scope of the research. Additionally, the consistency approach—which does not include systematic differences among raters in the error variance and focuses on the consistency of the scores—was adopted. To determine reliability based on the average of scores given by multiple raters, the ICC (3,k) type corresponding to the multiple-measurement model was used. This model is defined in the literature as the ninth ICC type and is referred to as "Two-way mixed effects, consistency, multiple raters/measurements" (Koo and Li, 2016).

$$\text{ICC (3,k)} = \frac{MSR - MSE}{MSR}$$

The intraclass correlation coefficient (ICC) was first introduced in 1954 by Ronald Aylmer Fisher as an adaptation of the Pearson correlation coefficient. However, the modern ICC is calculated using the mean squares obtained through analysis of variance (ANOVA)—that is, estimates of population variance calculated based on the variability within a specific set of measurements. Today, the ICC is widely used to assess inter-rater, intra-rater, and test-retest reliability. These assessments hold significant importance in terms of measurement.

Without them, we cannot trust our measurements and, consequently, cannot arrive at rational conclusions (Koo and Li, 2016).

Table 3. ICC Evaluation Criteria (Koo and Li, 2016).

ICC (Intraclass Correlation Coefficient)	Interpretation
Below 0.5	Weak
0.5- 0.75	Moderate
0.75- 0.90	Good
Above 0.90	Excellent

Table 4. Inter-rater reliability using the ICC method for three raters in the Memory Training Method

	Pre-test	Post-intervention
Richness Of Imagery	0.849	0.849
Composition	0.958	0.814
Narration	0.938	0.866
Form	0.911	0.895
Line	0.950	0.716
Place	0.898	0.942
Value	0.917	0.899

Pre- and post-test studies regarding the memory training method were evaluated by three subject matter experts. According to the pre-test results, the ICC values for composition (0.958), narration (0.938), line (0.950), and form (0.911) were above 0.90, indicating excellent reliability. The image richness (0.849), place (0.898), and value (0.917) dimensions, however, fall within the 0.75–0.90 range, indicating good reliability. Looking at the final application results; excellent and good levels of reliability were obtained for the place (0.942) and spot (0.899) dimensions, while the richness of imagery (0.849), composition (0.814), narration (0.866), and form (0.895) dimensions showed good reliability. In the line dimension, a value of 0.716 indicates moderate reliability. These findings demonstrate that there is generally a high level of consistency among raters in the memory training method and that the measurements are reliable.

Table 5. Inter-rater reliability using the ICC method for 3 raters in the Copy Method

	Pre-test	Post-intervention
Richness Of Imagery	0.925	0.862
Composition	0.919	0.855
Narration	0.927	0.929
Form	0.929	0.798
Line	0.902	0.904
Place	0.897	0.890
Value	0.923	0.880

In this study, two different methods were used; in the first table, the reliability of the pre-test and post-test scores for the copy method among three raters was examined using the ICC (3,k) model. According to the findings, the ICC values for image richness (0.925), composition (0.919), narration (0.927), form (0.929), line (0.902), and value (0.923) dimensions, indicating excellent reliability (0.90). In the spatial dimension, a reliability of 0.897 was obtained, indicating a good level (0.75–0.90). When examining the results of the final application, reliability was again found to be at an excellent (0.90) level in the dimensions of expression (0.929) and line (0.904). The dimensions of image richness (0.862), composition (0.855), form (0.798), place (0.890), and value (0.880), however, fall within the (0.75–0.90) range and demonstrate good reliability. Overall, it can be stated that both the pre- and post-test scores for the copying method showed a high level of consistency among the three raters and that the measurements are reliable.

Upon examining the findings for both methods, it was observed that inter-rater reliability was generally high for both the copying method and the memory training method.

Findings Regarding Validity Analysis

In this study, the reliability of the measurements was established first, because a test being reliable does not necessarily mean it is valid. However, a test being valid implies that it is reliable (Moskal and Leydens, 2000). To ensure content validity, the opinions of three subject matter experts were sought during the scale development process for both methods. Based on the experts' evaluations, it was determined that the seven identified criteria were appropriate and sufficient for both the copy and memory training methods. A cut-off method was employed to gather evidence regarding the extent to which the scores obtained from the measurement tool used in the study accurately reflected the construct (trait) intended to be measured. Examining the differences in item scores between the lower and upper groups using a t-test provides evidence regarding the discriminant validity of the items. The significant differences obtained may support the construct validity evidence of the measurement tool, as they indicate that the items can distinguish between individuals at different levels of the trait being measured. Here, it provides evidence that the items can distinguish between individuals at different levels of the trait being measured. This finding can be evaluated as evidence supporting construct validity. Since the same test was administered to both groups to determine whether the items can distinguish between individuals at different levels of the trait being measured, evidence for construct validity was obtained by applying this analytical method to a single group.

Table 6. Results of the independent samples t-test for the average scores obtained for all criteria in the final application of the copying method

Criteria	Groups	n	Mean	S	SD	t	p
Richness Of Imagery	Upper Group	8	5.00	0.00	14	2.389	0.032
	Lower Group	8	4.58	0.497			
Composition	Upper Group	8	4.83	0.182	14	5.605	0.000
	Lower Group	8	3.66	0.471			
Narration	Upper Group	8	4.87	0.250	14	4.804	0.000
	Lower Group	8	3.66	0.667			

Form	Upper Group	8	4.87	0.176	14	3.411	0.004
	Subgroup	8	4.16	0.561			
Line	Upper Group	8	4.91	0.157	14	5.598	0.000
	Lower Group	8	3.99	0.435			
Place	Upper Group	8	4.66	0.399	14	3.741	0.002
	Lower Group	8	3.71	0.604			
Value	Upper Group	8	4.75	0.347	14	4.840	0.000
	Lower Group	8	3.54	0.616			

P<0.05

To gather evidence of the items' discriminant validity, the average of the scores given by three raters was calculated, and the items were ranked from highest to lowest to apply the upper-lower groups method. An independent samples t-test was used to determine whether there was a significant difference between these two groups. The significant differences obtained through the upper-lower groups method indicate that the items can distinguish between individuals at different levels regarding the trait they are intended to measure and support evidence of construct validity based on the internal structure of the measurement instrument. Furthermore, since the same items were used in both groups, the relevant statistical analyses were tested on a single group.

Data Analysis

In the study, the pre-test and post-test assessments were scored by three subject matter experts using a rubric and analyzed using statistical software. The data were examined to determine whether they met the assumption of normality. In this context, the scores obtained for both groups across 7 criteria were tested using the Shapiro-Wilk normality test, taking the sample size into account, and the results are presented in Table 7.

Table 7. Results of the Shapiro–Wilk Normality Test for the Pre- and Post-Test Scores of Groups I and II

		Shapiro-Wilk		
Kriter	**Grup**	**İstatistic**	**df**	**p**
Richness Of Imagery	Group I (B.E.Y)-Ö.U	0,912	16	0,126
	Group I (B.E.Y) - S.U.	0,509	16	0,000
Composition	Group I (B.E.Y)-Ö.U	0,936	16	0,306
	Group I (B.E.Y) - S.U.	0,873	16	0,030
Narration	Group I (B.E.Y)-Ö.U	0,939	16	0,339
	Group I (B.E.Y) - S.U.	0,709	16	0,000
Form	Group I (B.E.Y)-Ö.U	0,955	16	0,575
	Group I (B.E.Y) - S.U.	0,742	16	0,001
Line	Group I (B.E.Y)-Ö.U	0,840	16	0,010
	Group I (B.E.Y) - S.U.	0,768	16	0,001
Place	Group I (B.E.Y)-Ö.U	0,946	16	0,429
	Group I (B.E.Y) - S.U.	0,842	16	0,011
Value	Group I (B.E.Y)-Ö.U	0,924	16	0,194
	Group I (B.E.Y) - S.U.	0,752	16	0,001
Richness Of Imagery	Group II (K.Y) - Ö.U.	0,804	16	0,003
	Group II (K.Y) - S.U.	0,636	16	0,000

Composition	Group II (K.Y) - Ö.U.	0,935	16	0,289
	Group II (K.Y) - S.U.	0,849	16	0,013
Narration	Group II (K.Y) - Ö.U.	0,899	16	0,076
	Group II (K.Y) - S.U.	0,862	16	0,020
Form	Group II (K.Y) - Ö.U.	0,831	16	0,007
	Group II (K.Y) - S.U.	0,819	16	0,005
Line	Group II (K.Y) - Ö.U.	0,932	16	0,266
	Group II (K.Y) - S.U.	0,847	16	0,012
Place	Group II (K.Y) - Ö.U.	0,880	16	0,039
	Group II (K.Y) - S.U.	0,829	16	0,007
Value	Group II (K.Y) - Ö.U.	0,871	16	0,028
	Group II (K.Y) - S.U.	0,893	16	0,063

As shown in Table 7, nonparametric statistical methods were preferred in this study because the assumption of normality was largely not met for the final test scores. Consequently, the Wilcoxon Signed-Rank Test was used for within-group comparisons across the seven criteria, while the Mann–Whitney U Test was used for between-group comparisons.

The reliability of the rubric used in the study was analyzed using the Intraclass Correlation Coefficient (ICC) to determine inter-rater consistency. As part of the validity studies for the rubric, content validity was examined based on expert opinions. To determine construct validity, the high–low group method was used, and the difference between these groups was analyzed using an independent samples t-test.

Findings

Group I (Memory Training Method): Whether There Is a Significant Difference Between Pre-Test and Post-Test Results

Table 8. Results of the Wilcoxon Signed-Rank Test for Pre- and Post-Application Scores in the Dimensions of Richness of imagery, Composition, Narration, Form, Line, Place, and Value in Group I (Memory Training Method)

Dimension	Negative rank (n)	Positive rank (n)	Tied (n)	Rank Mean Negative	Total Negative Rank	Average Rank: Positive	Total Rank Positive	Z	p	d (r_rb)
Richness Of Imagery	0	22	0	00,0	0,00	11,50	253,00	-4,133	0,000*	1,000
Composition	1	17	4	6,50	6,50	9,68	164,50	-3,447	0,001*	0,918
Narration	1	19	2	9,00	9,00	10,58	201,00	-3,588	0,000*	0,914
Form	0	20	2	0,00	0,00	11,00	231,00	-4,018	0,000*	1,000
Line	0	17	5	0,00	0,00	9,00	153,00	-3,626	0,000*	1,000
Place	3	15	4	4,33	13,00	10,53	158,00	-3,168	0,002*	0,825
Value	0	17	5	0,00	0,00	9,00	153,00	-3,631	0,000*	1,000

(r_rb: Rank Biserial Correlation)

To determine the effect of the drawing activity conducted using the memory training method in group I on students' performance, pre- and post-test scores related to image richness, composition, expression, form, line, space, and color were compared using the

Wilcoxon Signed-Rank Test. The analysis results showed statistically significant differences in favor of the post-intervention scores across all dimensions examined. Accordingly, statistically significant differences were found in favor of the post-intervention scores for image richness ($Z = -4.133$, $p < .05$), composition ($Z = -3.447$, $p < .05$), expression ($Z = -3.588$, $p < .05$), form ($Z = -4.018$, $p < .05$), line ($Z = -3.626$, $p < .05$), space ($Z = -3.168$, $p < .05$), and shape ($Z = -3.631$, $p < .05$) dimensions, it was determined that students' post-test scores increased significantly compared to their pre-test scores. Upon examining the distribution of paired differences, it was observed that for all participants, post-test scores on the image richness dimension were higher than their pre-test scores. On the composition dimension, while the post-test scores of the vast majority of participants increased, only one participant's score decreased and four participants' scores remained unchanged. In the expression dimension, 19 participants' scores increased, one participant's score decreased, and two participants' scores remained unchanged. In the form dimension, 20 participants had higher final application scores; in the line and shape dimensions, 17 participants each had higher final application scores; it was determined that the scores of two participants in the form dimension and five participants each in the line and shape dimensions remained unchanged. In the space dimension, the final application scores of 15 participants increased, while those of three participants decreased, and the scores of four participants remained unchanged.

The rank-biserial correlation coefficients, calculated to assess the magnitude of the differences between the pre-test and post-test, were evaluated in light of the reference values proposed by Cohen (1988) for correlation-based effect sizes ($|r| = .10$ for small, $|r| = .30$ for medium, and $|r| = .50$ for large effects). The effect sizes obtained were found to be large across all dimensions of image richness ($r_{rb} = 1.000$), composition ($r_{rb} = .918$), narration ($r_{rb} = .914$), form ($r_{rb} = 1.000$), line ($r_{rb} = 1.000$), space ($r_{rb} = .825$), and shape ($r_{rb} = 1.000$) dimensions. Consequently, it is evident that the improvement observed following the memory training method is not only statistically significant but also strong in terms of effect size. In particular, the fact that the rank-biserial correlation coefficient reached the theoretical upper limit of 1.00 in the dimensions of image richness, form, line, and shape indicates that the non-zero pre-test–post-test score differences in these dimensions showed complete consistency in terms of direction. When the findings are evaluated as a whole, it can be concluded that the intervention conducted using the memory training method resulted in statistically significant improvements in students' performance across the dimensions of image richness, composition, expression, form, line, space, and shape, supported by large effect sizes.

Group II (Copy Method): Whether There Is a Significant Difference Between Pre-Test and Post-Test Results

Table 9. Results of the Wilcoxon Signed-Rank Test for Pre- and Post-Application Scores on Richness of imagery, Composition, Expression, Form, Line, Place, and Spot Size for Group II (Copy Method)

Dimension	Negative rank (n)	Positive rank (n)	Tied (n)	Rank Mean Negative	Total Negative Rank	Rank Average Positive	Total Rank Positive	Z	p	d (r_rb)
Richness of imagery	0	16	0	0,00	0,00	8,50	136,00	-3,539	0,000*	1,000
Composition	0	16	0	0,00	0,00	8,50	136,00	-3,519	0,000*	1,000
Narration	0	14	2	0,00	0,00	7,50	105,00	-3,306	0,001*	1,000
Form	0	15	1	0,00	0,00	8,00	120,00	-3,417	0,001*	1,000
Line	0	16	0	0,00	0,00	8,50	136,00	-3,540	0,000*	1,000
Place	0	16	0	0,00	0,00	8,50	136,00	-3,535	0,000*	1,000
Value	0	15	1	0,00	0,00	8,00	120,00	-3,418	0,001*	0,985

(r_rb: Rank Biserial Correlation)

To determine the effect of the painting exercise conducted using the copying method in group II on students' performance, pre- and post-test scores related to image richness, composition, expression, form, line, space, and color were compared using the Wilcoxon Signed-Rank Test. The analysis results showed statistically significant differences in favor of the post-test across all dimensions examined. Accordingly, statistically significant differences were found in favor of the post-intervention in image richness ($Z = -3.539$, $p < .05$), composition ($Z = -3.519$, $p < .05$), expression ($Z = 3.306$, $p < .05$), form ($Z = 3.417$, $p < .05$), line ($Z = -3.540$, $p < .05$), space ($Z = -3.535$, $p < .05$), and shape ($Z = -3.418$, $p < .05$).

Upon examining the distribution of ranked differences, it was observed that for all participants ($n = 16$), the post-test scores were higher than the pre-test scores in the dimensions of imagery richness, composition, line, and space, and that there were no rankings favoring the pre-test or showing equal rankings in these dimensions. In the narrative dimension, 14 participants' post-intervention scores were higher, while the scores of two participants remained unchanged; in the form and color dimensions, 15 participants each had higher post-intervention scores, and the scores of one participant in each dimension remained unchanged. These findings demonstrate that, following the intervention conducted using the copying method, the students showed improvement in all of the examined criteria for evaluating drawings.

The rank-biserial correlation coefficients, calculated to assess the magnitude of the differences between the pre-test and post-test, were evaluated in light of the reference values proposed by Cohen (1988) for correlation-based effect sizes ($|r| = .10$ for small, $|r| = .30$ for medium, and $|r| = .50$ for large effects). The effect sizes obtained were found to be large across all dimensions of image richness ($r_{rb} = 1.000$), composition ($r_{rb} = 1.000$), narration ($r_{rb} = 1.000$), form ($r_{rb} = 1.000$), line ($r_{rb} = 1.000$), space ($r_{rb} = 1.000$), and shape ($r_{rb} = .985$). Consequently, it is evident that the improvement observed following the copying

method is not only statistically significant but also quite strong in terms of effect size. In particular, the fact that the rank-biserial correlation coefficient reached the theoretical upper limit of 1.00 in the dimensions of image richness, composition, narration, form, line, and space indicates that the non-zero pre-test–post-test score differences in these dimensions showed complete consistency in terms of direction. The value of r_rb = .985 obtained for the "stain" dimension is also very close to the theoretical upper limit, indicating that the development in this dimension has a strong effect.

When the findings are evaluated holistically, it is evident that the application carried out using the copying method resulted in statistically significant improvements in students' performance in the dimensions of imagery, composition, expression, form, line, space, and color, and that these improvements were supported by large effect sizes across all dimensions. These results demonstrate that the copy method has a strong effect on the examined criteria for evaluating drawings, both in terms of statistical significance and effect size.

A Comparative Presentation of the Difference Between the Pre- and Post-Test Results for Group I (Memory Training Method) and the Difference Between the Pre- and Post-Test Results for Group II (Copy Method)

Table 10. Mann-Whitney U Test Results for the Differences in Pre-Test and Post-Test Scores Regarding Image, Composition, Narration, Form, Line, Place, and Value Color Dimensions Between Group I (Memory Training Method) and Group II (Copy Method)

Dimension	Group	N	Rank Mean	Total Rank	U	Z	P	d (r_rb)
Richness of imagery	Group I (B.E.Y)	22	19,07	419,50	166,500	-0,287	0,774	0,054
	Group II (KY)	16	20,09	321,50				
Composition	Group I (B.E.Y)	22	17,75	390,50	137,500	-1,142	0,253	0,219
	Group II (KY)	16	21,91	350,50				
Narration	Group I (B.E.Y)	22	18,02	396,50	143,500	-0,965	0,335	0,185
	Group II (KY)	16	21,53	344,50				
Form	Group I (B.E.Y)	22	17,59	387,00	134,000	-1,246	0,213	0,239
	Group II (KY)	16	22,13	354,00				
Line	Group I (B.E.Y)	22	18,32	403,00	150,000	-0,772	0,440	0,148
	Group II (KY)	16	21,13	338,00				
Place	Group I (B.E.Y)	22	16,84	370,50	117,500	-1,742	0,082	0,332
	Group II (KY)	16	23,16	370,50				
Value	Group I (B.E.Y)	22	16,89	371,50	118,500	-1,706	0,088	0,327
	Group II (KY))	16	23,09	369,50				

(r_rb: Rank Biserial Correlation)

The Mann–Whitney U test was applied to compare the differences in pre- and post-intervention scores between the groups I (B.E.Y) and II (K.Y) regarding the dimensions of

image richness, composition, narrative, form, line, space, and color. The results of the analysis showed that there was no statistically significant difference between the groups I (B.E.Y) and II (K.Y) in any of the dimensions examined ($p > .05$). When examined by dimension, there were no statistically significant differences between the groups I (B.E.Y) and II (K.Y) in terms of image richness ($U = 166.50$, $Z = -0.287$, $p > .05$), composition ($U = 137.50$, $Z = -1.142$, $p > .05$), narrative ($U = 143.50$, $Z = -0.965$, $p > .05$), form ($U = 134.00$, $Z = -1.246$, $p > .05$), line ($U = 150.00$, $Z = -0.772$, $p > .05$), space ($U = 117.50$, $Z = -1.742$, $p > .05$), and color ($U = 118.50$, $Z = -1.706$, $p > .05$) did not differ significantly across groups.

Upon examining the rank averages of the groups, it was observed that the rank averages of the group I (B.E.Y.) (19.07) and group II (K.Y.) (20.09) were quite close to each other on the image richness dimension. In the other dimensions, however, the group II (K.Y) rank averages were found to be higher than those of the group I (B.E.Y) in the dimensions of composition (21.91), narrative (21.53), form (22.13), line (21.13), space (23.16), and color (23.09) (compared to the group I (B.E.Y) rank averages of 17.75, 18.02, 17.59, 18.32, 16.84, and 16.89, respectively); however, none of these observed differences reached the level of statistical significance. These findings indicate that memory training and the copying method generally yield similar results in terms of students' development across the examined picture evaluation dimensions.

The rank-biserial correlation coefficients, calculated to assess the magnitude of differences between groups, were evaluated using the reference values proposed by Cohen (1988) for correlation-based effect sizes ($|r| = .10$ for small, $|r| = .30$ for medium, and $|r| = .50$ for large effects). Accordingly, the effect size obtained for the image richness dimension ($r_{rb} = .054$) was found to be below the small effect threshold and thus negligible; for the composition ($r_{rb} = .219$), narration ($r_{rb} = .185$), form ($r_{rb} = .239$), and line ($r_{rb} = .148$) dimensions were found to be small. In contrast, the rank-biserial correlation coefficients calculated for the space ($r_{rb} = .332$) and spot ($r_{rb} = .327$) dimensions indicate a moderate effect size.

When the findings are evaluated holistically, it is observed that the pre-intervention–post-intervention score differences for the groups I (B.E.Y) and II (K.Y) did not differ at a statistically significant level in any of the dimensions examined; meanwhile, the effect sizes were negligible in the image richness dimension, small in the composition, narrative, form, and line dimensions, and moderate in the space and color dimension. These results indicate that memory training and the copying method produced similar patterns of development across the dimensions examined. However, although statistical significance was not reached for the space and color dimensions, the fact that the observed differences in rank means in favor of the group II (K.Y) emerged alongside moderate effect sizes suggests that group differences in these two dimensions may be noteworthy in terms of effect size.

Conclusion and Discussion

When comparing the pre-test and post-test works of students in Group I, where the memory training method was applied, it is evident that they made remarkable progress in the post-test in terms of the criteria of imagery richness, composition, expression, form, line, space, and color. It was concluded that the memory training method is an effective approach for helping nearly all students grasp mythological elements. A notable finding is that nearly the entire class showed significant improvement in terms of the criterion of richness of imagery. While the use of imagery was more limited in the pre-test works, there was a striking increase in the post-test works. This indicates that the method is effective in strengthening students' memory. The memory training method is used not only to break the habit of rote memorization but also to help students learn all the objects and figures that they cannot fully

perceive—and which therefore do not take root in their memory and which they avoid visualizing (Ateş & Yılmaz, 2024, p. 1594). From the perspective of the composition criterion, while no distinct order was observed in the pre-test works, a positive development in composition skills was noted in the post-test. When evaluated in terms of the expression criterion, it was found that the vast majority of students produced works that were more successful in terms of emotional reflection and expressive power in the post-test compared to the pre-test. From the perspective of the form criterion, while the formal characteristics of mythological elements were not sufficiently reflected in the preliminary works, it was concluded that the formal characteristics of the five mythological elements were reflected in a manner consistent with the Anatolian Seljuk style in the final works. When evaluated in terms of the line criterion, it was observed that the vast majority of students used more broken and sketch-like lines in the preliminary assignment, and some works were left unfinished. In the final assignment, however, they depicted their works with a more consistent and continuous line style. When comparing the preliminary and final application exercises in terms of space and value criteria, it is evident that the spatial composition and value distribution were more limited in the preliminary exercise. In the final exercise, however, it is understood that more than half of the students established a relationship between figures and space, using value to add depth to the visual image, and developed a structured ability to achieve a balance between light and dark. In conclusion, it was determined that the memory training method activates students' imaginative power by supporting their levels of creativity and visual perception. In this context, the memory training method is seen as an effective approach for helping students comprehend mythological elements.

I In Group II, where the copying method was applied, a comparison of the results from the pre-test and post-test regarding the criteria of imagery, composition, expression, form, line, space, and color reveals that, following the copying method, students achieved more successful results in the post-test compared to the pre-test. This finding demonstrates that the copying method is effective across all criteria. In terms of the visual richness criterion, the use of imagery in the pre-test was found to be more limited and vaguer. However, a consistent improvement was observed among students in the post-test. It is evident that students working with the copying method have significantly improved their ability to perceive and convey visual imagery. From the perspective of the composition criterion, the final application exercises revealed a positive development in the ability to create cohesion and structure compositions. When evaluated in terms of the expression criterion, the students' lack of sufficient knowledge regarding the depictions in the pre-test limited their visual expression. In the final application works, however, it was observed that the visual expressions of nearly all students were clearer following the copying method. From the perspective of the form criterion, it was observed in the preliminary application that students struggled to reflect the anatomical structure of mythological elements. However, after the formal characteristics of mythological elements were taught through copying training, a positive development in students' perception of form and their ability to convey it was observed in the final application. When evaluated in terms of the line criterion, while the preliminary application featured more hesitant and indefinite lines, the final application showed that line usage had become distinct and controlled. From the perspective of the spatial criterion, it was observed that spatial perception had not yet developed sufficiently in the preliminary application. However, in the final application, notable progress was achieved in spatial composition. When evaluated in terms of the "mark" criterion, the inadequacy in reflecting mythological elements in the preliminary application also limited the establishment of a balance between light and dark. However, in the final application studies conducted after the training, meaningful development was observed regarding this criterion. Accordingly, it was concluded

that the copying method is effective in helping students understand mythological elements and accurately convey their visual characteristics. It was observed that this method supports students' comprehension and perception skills.

In the study, both methods were implemented at different schools: the memory training method was used with Group I at Van Fine Arts High School, while the copying method was used with Group II at Bitlis Fine Arts High School.

When the pre-test–post-test score differences for Group I (memory training method) were compared with those for Group II (copying method), it was observed that the rank averages of both groups were quite close to each other. This finding indicates that, within the scope of this study, the memory training method and the copying method had similar levels of impact on the students. When evaluated in terms of the imagery criterion, it was determined that the use of imagery had become richer in the post-test works of both groups, and that there was no significant difference between the groups. While the memory training method supports students' ability to structure mental images, the copying method strengthens their ability to accurately and controlledly reproduce imagery based on a visual source. In terms of the composition criterion, it was observed that students in both groups demonstrated improvement in their composition and imaginative storytelling skills compared to the pre-intervention assignments. It was determined that compositions in the final application assignments were created in a more conscious manner than in the pre-intervention assignments. When the expression criterion was examined, it was found that students in Group I (B.E.Y.) and Group II (K.Y.) reflected their visual themes more clearly and comprehensibly in their final application works. It was observed that neither group demonstrated a clear superiority over the other in terms of the expression criterion. When evaluated in terms of the form criterion, it was observed that students in both groups more accurately reflected the visual characteristics of mythological elements in their final application works, and it was concluded that both methods were effective for the students. When evaluated in terms of the line criterion, it was determined that line mastery was reflected in a more consistent and deliberate manner in the final application works of both groups. This finding demonstrates that the development in line usage showed a distinct difference in both groups compared to the preliminary application exercises. When evaluated in terms of the spatial criterion, it was determined that nearly all students in Group I (B.E.Y) and Group II (K.Y) showed remarkable development in spatial composition. It was observed that the spatial arrangements created by the students based on the mythological narratives they wrote reflected their thematic content in a more appropriate and conscious manner. When evaluated in terms of the value criterion, it was understood that students in both groups showed similar levels of progress and that the functional use of value within the composition had become more conscious. It was observed that works left mostly as sketches or not scaled in the preliminary exercises were scaled using light and dark values following the instruction provided to both groups and were included in nearly all of the final exercises.

Although the methods applied to Group I (B.E.Y.) and Group II (K.Y.) were based on different learning processes, when the students' levels of understanding and artistic skills were evaluated based on seven criteria, it was determined that similar levels of development were observed in both groups. Accordingly, no significant superiority was identified between the groups in terms of the seven criteria. In conclusion, following the instruction, it was observed that the group in which the memory training method was applied and the group in which the copying method was applied demonstrated similar levels of development in their final application projects. Accordingly, it was concluded that the teaching approaches used in both groups represent methods that can be utilized in visual arts education and can support students' artistic development.

A review of the literature reveals studies indicating that memory-based learning approaches and the copying method have various effects on students' learning processes. Liu and Lahoz (2024) note that the combined use of visual, auditory, and kinesthetic teaching approaches strengthens long-term memory and enhances the durability of learning. This aligns with our study in terms of how memory-based learning processes support students' mental imagery and recall skills. Similarly, in a study conducted by Děchtěrenko, Bainbridge, and Lukavský (2025), the visual memory performance of art students was compared with that of non-art students, and it was determined that art students exhibited higher recall performance. These results support the findings of this study in that they demonstrate that visual representations and drawing processes can structure information in memory in a more detailed and lasting manner. However, unlike other studies, Von Bastian and Oberauer (2014) argue that memory training has the potential to support cognitive development, but its effect depends on the conditions of application and individual characteristics. Karaca (2011), noting in their study that the copying method is one of the effective teaching approaches that support creativity and artistic learning, aligns with the findings of this research. Yılmaz (2010), on the other hand, states that the copying method can have both supportive and limiting effects on students' self-confidence, thereby highlighting the importance of the method's implementation. Additionally, a study conducted by Indriyani, Jasmienti, and Ningsih (2023) aligns with the research findings, indicating that the copying method is effective in enhancing pre-service teachers' lesson planning skills when used in conjunction with a project-based learning model. These studies demonstrate that different teaching approaches can support students' cognitive and artistic development during the learning process.

This research demonstrates that the memory training method and the copying method can contribute to the development of students' visual art skills. Similar studies in the literature indicate that different methods can have a supportive effect on students' learning processes. Of course, it should be noted that the effectiveness of a method may vary depending on the teaching process and how it is implemented. It is understood that the results obtained in this study show a high degree of similarity with studies in the literature and are consistent with such studie

Recommendations

- In future research, it is recommended that the memory training method and the copying method be applied to different age groups, using different techniques and covering different subjects.
- The incorporation of mythological elements and cultural heritage components into lesson content enhances students' cultural awareness. For this reason, it is recommended that cultural heritage elements be given greater prominence in visual arts education.
- During the implementation of these methods, it was observed that class hours were insufficient for students to fully carry out their projects. Therefore, it is recommended that visual arts class hours be increased.

Human Ethics and Participant Consent

This study involved only human participants; no experiments were conducted on animals. To conduct the research, ethical approval was obtained from the Bitlis Eren University Ethics Principles and Ethics Committee under decision numbers 2024/01-7 and E.4972, and the study was conducted in accordance with this decision.

Informed Consent

Informed consent was obtained from all individual participants prior to the data collection process. Participants were informed about the purpose and scope of the study, their right to withdraw from the study at any time without any penalty, and the confidentiality and anonymity of their responses.

Conflict of Interest

The author(s) declare that there is no conflict of interest.

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References

Arık, R. (2000). The Seljuk Palace and Tiles of Kubad Abad. Türkiye İş Bankası Cultural Publications.

Ateş, A., & Yılmaz, M. (2024). A Proposed Method for Developing Visual Perception in Art Education. Turkish Journal of Educational Sciences, 22(2), 1577–1600.

Bacanlı, H. (2001). Development and Learning. Nobel Publications.

Buyurgan, S., & Buyurgan, U. (2020). Art Education and Instruction (7th ed.). Pegem Akademi.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.).* Lawrence Erlbaum Associates.

Děchtěrenko, F., Bainbridge, W. A., & Lukavský, J. (2025). Visual Free Recall and Recognition. In Art Students And Laypeople. *Memory & Cognition, 53*(1), 363–378. https://Doi.Org/10.3758/S13421-024-01607-7

Denson, T. F., & Anderson, C. A. (2023). Experimental Methods. In A. L. Nichols & J. Edlund (Eds.), *The Cambridge Handbook of Research Methods and Statistics For The Social And Behavioral Sciences* (Vol. 1, pp. 333–356). Cambridge University Press. https://doi.org/10.1017/9781009010054.017.

Güvenilir, T., & Yılmaz, M. (2017). The Effect of the Memory Training Method in Visual Arts Education on Students' Stereotypical Plant Drawings. Journal of the Faculty of Education, Pamukkale University, 44, 28–46.

Haladyna, T. M. (1997). *Writing Test İtems To Evaluate Higher Order Thinking*. Viacom Company.

İnceağaç, M. (2022). The Role of Contemporary Art in Original Printmaking Education and the Example of Screen Printing as a Reproduction Method in Art Education. E-International Journal of Pedagogy, 2(2), 1–18.

Indriyani, V., Jasmienti, J., & Ningsih, A. G. (2023). The Effect of Pjbl with Copy The Master Method On The Skills Of Writing Lesson Plans. *Journal of Innovation in Educational and Cultural Research, 4*(2), 271-279.

İneç, S. (2002). The Copy Method in Elementary School Art Classes (Unpublished master's thesis). Uludağ University, Institute of Social Sciences.

Karaca, G. (2011). The Effect of the Copying Method in Visual Arts Education on the Creativity of Elementary School Students. Journal of the Faculty of Education, Mehmet Akif Ersoy University, 1(21), 299–321.

Kaya, H., & Çevik, A. (2020). The Effect of Memory-Supporting Strategies Used in Science Classes on Academic Achievement and Retention. Journal of Education Theory and Practical Research, 6(1), 67–85.

Kırışoğlu, T. O. (2019). Studying, Learning, and Creating in the Arts. Ütopya Publications.

Koçer, F. (2024). Reflections of Mythological Motifs Found on the Tiles of the Kubad Abad Palace in Contemporary Tile Surfaces. The Journal of Academic Social Science, 116, 148–166.

Köksal, O. (2013). The Effect of Memory-Supporting Strategies Used in 5th-Grade Elementary School English Classes on Achievement, Attitude, Vocabulary, and Retention (Doctoral Dissertation). Necmettin Erbakan University, Institute of Educational Sciences.

Koo, T. K., & Li, M. Y. (2016). A Guideline of Selecting and Reporting İntraclass Correlation Coefficients for Reliability Research. *Journal of Chiropractic Medicine, 15*(2), 155–163.

Kozmus, D., & Kozmus, A. (2023). Mnemonics-Memory Methods for More Effective Learning. *International Journal of Education Humanities and Social Science, 6*(04), 32-43.

Kuban, D. (2008). Art in Anatolia During the Seljuk Period (2nd ed.). Yapı Kredi Publications.

Liu, K., & Lahoz, D. E. A. (2024). Impact Of Learning Styles on Students' Retention Of İnformation. *International Journal of Education and Humanities, 17*(1), 207-212.

Mohd Nazri, L. A., Muhammad Hadi Syafiq, M. N., & Nurazan, M. R. (2016). A Case Study on The Effects Of Mnemonics On English Vocabulary. *International Journal of Applied Linguistics & English Literature, 5*(7), 178–185.

Moskal, B. M., & Leydens, J. A. (2000). Scoring Rubric Development: Validity and Reliability. *Practical Assessment, Research & Evaluation, 7*(10), 71–81.

Nayeri, N. D., Noodeh, F. A., Nia, H. S., Yaghoobzadeh, A., & Goudarzian, A. H. (2023). Statistical Procedures Used İn Pretest-Posttest Control Group Design: A Review Of Papers İn Five Iranian Journals. *Acta Medica Iranica, 584-591.*

Novellino, G. R., Edwards, R., & McCallum, R. S. (1986). Use Of Microcomputers to Copy İnformation: Effects on Free Recall. *Computers in human behavior*, *2*(2), 117-126.

Oral, M. Z. (1953). The Kubad Abad Tiles. Belleten, 17(66), 209–223.

Özmen, H. (2015). Experimental research methods. In M. Metin (Ed.), Scientific Research Methods in Education (pp. 47–76). Pegem Akademi.

Özmen, H. (2023). Experimental research methods. In H. Özmen & O. Karamustafaoğlu (Eds.), Research methods in education (3rd ed., pp. 198–226). Pegem Akademi.

Rinne, L., Gregory, E., Yarmolinskaya, J., & Hardiman, M. (2011). Why Arts İntegration İmproves Long-Term Retention Of Content. *Mind, Brain, and Education, 5*(2), 89–96.

Şimşek, A. (2018). Research models. In A. Şimşek (Ed.), Research methods in the social sciences (pp. 80–106). Anadolu University.

Turkish Language Association. (n.d.). Turkish Language Association dictionaries. http://www.tdk.gov.tr

Von Bastian, C. C., & Oberauer, K. (2014). Effects And Mechanisms of Working Memory Training: A Review. *Psychological Research, 78*(6), 803–820.

Weinstein, C. E., & Mayer, R. E. (1983). The Teaching of Learning Strategies. *Innovation Abstracts, 5*(32).

Yapıcı, Ş., & Yapıcı, M. (2005). Psychology of Development and Learning. Anı Publishing.

Yılmaz, M. (1999). A Study of Figurative Tiles Used in Anatolian Seljuk Palaces and Pavilions from the Perspective of the Art of Painting (Doctoral Dissertation). Gazi University, Institute of Social Sciences.

Yılmaz, M. (2009). Applications in Visual Arts Education: 196 Methods. Gündüz Education and Publishing.

Yılmaz, M. (2010). Motivation in Art Education, Copying and Imitation in Art Education, Techniques and Methods in the Visual Arts (pp. 193–297). In K. Artut (Ed.), Special Teaching Methods in Fine Arts Education. Anı Publishing.

Yılmaz, M., & İnceağaç, M. (2017). Development of a Rubric to Determine the Impact of Literary Works in Visual Arts Education Practices. Journal of the Faculty of Education, Erzincan University, 19(3), 1-16.

Yolcu, E. (2021). Theories and Methods of Art Education. Pegem Academy.

Zubair, A.M. Experimental research design-types & process. Acad. Open 2023, 8, 14–19 https://www.example.com/