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The Impact of the Adaptive Education Strategy on the Development of Perspective Drawing Skills Among Students of the Art Education Department

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Abstract

Perspective drawing is a fundamental aspect of both art education and the visual arts, as its principles align with the teaching of drawing in art education, particularly in the arrangement of subject elements within the spatial dimensions of a canvas—length, width, and depth. Mastering perspective drawing requires students to develop specialized skills in this area, yet it remains one of their most significant challenges. The researcher was driven to investigate this issue due to the students' consistently low grades in perspective drawing, alongside the noticeable deficiency in their skills, as observed during her annual visits to various departments for research purposes. Through direct conversations with numerous students, she inquired about the reasons behind their struggle with perspective drawing. Their responses indicated that the instructional approach used in the subject was a key factor in their difficulties. This realization prompted the researcher to explore methods that could enhance students' skills in this field, seeking an alternative to the traditional lecture-based teaching method commonly employed in perspective drawing courses. Consequently, she was guided to experiment with the Adaptive Education Strategy, given its rich educational components. Accordingly, the researcher has defined the focus of the current study as "The Use of the Adaptive Education Strategy in Developing Perspective Drawing Skills Among Students of the Art Education Department.".

Keywords: *Adaptive Education, Perspective Drawing Skills, Art Education Department.*

Introduction

Importance of the Study

The results of the current study may contribute a significant cognitive addition to the field of art education through the Adaptive Learning Strategy, which aids learners in developing skills and achieving the specific objectives of the perspective drawing course.

The current study aligns with modern trends in the development of teaching methods and strategies in art education.

The significance of this study lies in the importance of the topic it addresses, opening new avenues for educators, researchers, and graduate students to explore the use of the Adaptive Learning Strategy in the teaching and learning process, particularly in the field of art education.

This research may encourage the broader adoption of modern teaching methods, with a particular emphasis on inspiring instructors of perspective drawing to recognize and appreciate the

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importance of these innovative strategies.

Study Objectives

To examine the impact of the Adaptive Learning Strategy on the development of drawing skills among students in the Art Education Department, specifically in the area of perspective drawing.

To achieve the study's objectives, the researcher formulated the following hypotheses:

There are no statistically significant differences at the 5% significance level between the mean scores of the experimental group, which is taught using the Adaptive Learning Strategy, and the mean scores of the control group, which is taught through traditional lecture methods, in the pre-test for the perspective drawing skills.

There are no statistically significant differences at the 5% significance level between the mean scores of the experimental group, which is taught using the Adaptive Learning Strategy, and the mean scores of the control group, which is taught through traditional lecture methods, in the post-test for the perspective drawing skills.

Scope of the Study

The current study is defined by the following:

1. Spatial Scope: University of Diyala, College of Fine Arts, Art Education Department
2. Temporal Scope: The academic year (2023 - 2024)
3. Human Scope: Second-year students in the Art Education Department, daytime study program
4. Thematic Scope: Adaptive Learning Strategy, Drawing Skills in Perspective

Definition of Terms

Strategy (Definition)

According to Sada (2018), strategy is the concept that requires the establishment of a general teaching plan, incorporating aspects of educational administration, curriculum, and teaching methods. (Sada: 2018, p. 6)

According to Mashala (2016), it is a set of procedures and measures pre-arranged by the teacher to conduct the teaching process in a meticulous manner, achieving the desired objectives with the simplest resources and circumstances. (Mashala: 2016, p. 22)

From this perspective, the researcher found that neither of these definitions fully served the needs of her current study. Therefore, She defined it procedurally as follows:

It is a set of procedures that employ the Adaptive Learning Strategy within the current study of the researcher, applied to a sample of students from the Art Education Department at the College of Fine Arts, in order to determine whether this strategy contributes to the development of perspective drawing skills.

Adaptive Learning

Bower (2015) defines it as a method for creating an educational experience for both the student and the teacher, based on the organization of information within a specific timeframe aimed at improving performance in light of predefined standards. The design of learning is strategically

adjusted through lessons to meet the requirements of the learners. (Bower, 2015, p. 109)

Berselksi (2003) defines it as an educational method that utilizes various technological innovations in the form of interactive teaching tools, with content structured according to the individual characteristics of each learner. These innovations adapt the presentation of educational content according to the needs of the learners. (Berselksi, 2003, p. 161)

From the definitions above, the researcher found none that fully served the needs of her current study. Therefore, she defined it procedurally as follows:

It is one of the learning methods in which the learner is provided with content according to the diverse patterns, methods, and characteristics of the learners, whether through traditional or electronic means, while considering individual differences. This is achieved by adapting to the educational environment, content, presentation methods, as well as the interaction between the student and teacher in both quantitative and qualitative aspects.

Definition of Skill (Terminologically)

Turkhan (2005) defines it as referring to the context of actions or practical procedures carried out by an individual in their pursuit of a specific goal or production. Skill requires precision in executing the steps and speed in performance. (Turkhan, 2005, p. 10)

Researcher's Procedural Definition of Skill

It refers to the skills acquired by second-year students in the Art Education Department through mastering perspective drawing techniques.

Definition of Perspective (Terminologically)

Al-Baalbaki (2004) defines perspective as the appearance of an object as perceived by the mind from a specific angle, emphasizing the ability to see things according to their correct relationships or importance. (Al-Baalbaki, 2004, p. 611)

Muhayeddin Taboo (2010) defines it as the representation of objects on a flat surface, not as they are in reality, but as they appear to the observer from a particular position and distance. (Muhayeddin Taboo, 2010, p. 86)

From this perspective, the researcher found none of these definitions fully served her current study. Therefore, she defined it procedurally as follows:

The ability to draw perspective with high proficiency, reflecting new ideas within an educational environment using shapes and technical drawings that adhere to artistic standards and rules, as evidenced by their responses to the selected items prepared by the researcher.

Chapter Two: Theoretical Framework

First: The Concept of Teaching Strategy:

A strategy provides a general vision and a realistic representation of the theory from which it originates, through the data, information, and execution procedures it offers. These contribute to reaching a level of understanding and knowledge, enabling the formulation of a logical plan based on the perception of the relationships among the interactive elements in the educational field.

The strategy is employed in educational settings and institutions to represent a plan, an

educational path, or procedures and steps that the teacher uses to achieve the educational outcomes they have set, which may be cognitive, emotional, social, or psychomotor. The goal is to acquire information through a series of structured, organized, and sequential steps, which enable the teacher to develop teaching methods and skills that align with the educational context, the teacher's abilities, and the curriculum.

(Saadi, 2016, p. 6)

Both Zayton (2009) and Daaj (2019) state that teaching strategy is broader and more comprehensive than a teaching method, as a teaching strategy encompasses several methods or even a single method, depending on the educational goals intended to be achieved through the implementation of the strategy. A method, on the other hand, is chosen to achieve a specific, integrated educational goal within a single teaching situation. (Zayton, 2009, p. 263) (Daaj, 2019, pp. 60-61)

Teaching strategy "focuses on enabling the learner to achieve specific goals, free from any negative outcomes. The diversification of teaching strategies used with students can break the monotony often perceived by many students… Modern trends emphasize that the student is the main focus of the learning and teaching process, and they should have the most significant role in the educational process." (Hamdan, 2018, p. 34)

Second: Types of Teaching Strategies:

Teaching strategies are classified as follows:

A. General Strategy: This involves determining activities and tasks in general terms, which are similar for all students. This type of strategy is applied when the groups are homogeneous, with no significant individual differences in social, environmental, or educational readiness.

B. Diverse Strategy: According to this strategy, each group of students is different from others, so the activities and tasks for each group should be specifically tailored.

C. Centralized Strategy: In this strategy, a single set of activities and tasks is designed for one specific group of students, considering differences such as in groups of the hearing impaired, slow learners, or students with learning difficulties.

(Zayer & Samaa, 2013, p. 135) (Zayton, 2009)

Chapter Two: Adaptive Learning

The success of any human or electronic system depends on the compatibility of its components with one another, as well as its alignment with the learner's characteristics to achieve predefined goals. In such a system, the components move individually while remaining in harmony with the collective movement of the entire system. As a result, the final product is produced efficiently and quickly, with minimal waste in terms of the learner's time. The system first identifies the learner's learning style, then offers content that suits that style, based on tracking the learner's progress to gather as much data as possible about them.

(Mclaren B. 2013:6)

One of the key pillars of applying adaptive learning is that it often provides a challenge by presenting content specifically designed for a wide range of students, especially considering the limitations imposed by more difficult and costly approaches to ensure higher levels of student success.

(Newman, A. 2013;21)

From this perspective, this educational system is an innovation aimed at changing traditional rules and moving beyond being a remedial system to one that suits all learners across various disciplines, ultimately accelerating learning or, in the highest sense, enabling "fast learning." When all elements of the educational system align with each other, there is no alternative but for learning to occur quickly and without obstacles for either the teacher or the learner. This is because the learner easily finds in adaptive or personalized learning what suits them and aligns with their preferences and interests. This, in turn, nurtures their inclinations and develops their attitudes. From this, it is evident that adaptive learning places students in an environment capable of accommodating their characteristics, provided it is well-prepared. This undoubtedly requires expanding the use of technology to enable rapid adaptation to different educational needs. The philosophy of adaptive learning aims to achieve this, as appropriate technology saves time and effort in achieving the desired goals. Adaptive technology platforms offer personalized content in real-time through an interactive user interface, provide interactive training boards, and supply a roadmap to guide students toward content alignment.

(Feldstein M. 2013;6)

Goals of Adaptive Learning:

Adaptive learning has the ability to:

- Reduce dropout and failure rates.
- Be more effective than other systems in achieving outcomes.
- Help students achieve results more quickly.
- Free faculty members from providing direct assistance and supervision, allowing for guidance based on the specific needs of students.
- Cater to a wide range of students with different learning styles and methods.
- Assist students with special needs.
- Meet the needs of talented and gifted students, as well as those with learning difficulties.
- Present educational content through smart teaching methods.
- Adapt quickly to different learning environments.
- Save significant time in identifying the learner's learning style or in the learner's absorption of the content.

Features of Adaptive Learning

Adaptive learning is one of the most modern, effective, and suitable teaching methods, representing a promising future for education.

(Kara and Sevim, 2013)

Adaptive learning provides educational platforms that offer greater opportunities for teachers to employ adaptive learning programs, especially for those who find it difficult to design AI-based computer programs. It allows teachers to deliver content in various ways based on students'

interests and characteristics. Additionally, it provides multiple educational resources to students according to their learning paths and offers real-time feedback based on their responses. It is considered one of the most effective and efficient learning environments.

(Maher et al., 2023:147)

Chapter Three: Perspective - Foundations and Geometrical Rules

The knowledge of perspective rules is considered one of the essentials that must be grasped for successfully completing a work of art in drawing or engineering. Since the beginning of drawing, it has always been closely associated with the existence of humanity, as historical evidence confirms. “Humans have practiced various types of visual arts, including drawing, sculpture, and decoration, trying to express through them their feelings and senses, as well as the surrounding living and non-living materials, and to depict the vast space that surrounds these materials.” (Al-Sheikhly, 1978, p.9)

Looking back to ancient times, it is noted that early humans “drew shapes on the walls of caves, temples, and elsewhere, but they did not achieve the three-dimensional representation of these shapes until later. Since the emergence of perspective in ancient Egyptian art, which was linked to religious beliefs and the eternal life concept, it marked a transitional phase towards idealism in Greek and Roman art. This phase was connected to linear and natural perspective in art, representing life through the direction and concept of this perspective. Humans have always tried to replicate the shapes of things that caught their attention, whether through drawing or writing.” (Malikah, 1980, p.11)

Thus, perspective, in its known form today, did not exist in primitive art. However, this fact does not diminish the value of these arts, as most of these works were drawn by the artist relying on their memory. The imagination of the primitive artist was one of the most important factors in the innovation of their artistic output.

(Al-Shahhaz, 2001, p.34)

Historically, artists have sought to convey “ideas that became messages expressing human feelings about reality through subjective visions. The artwork, in its essence, has its own independence, its own life, and the quality of life in art is real, differing from the quality of life in actual existence. This is what distinguishes art from life and makes it an independent world in itself.”

(Radi, 1986, p.48)

From this, the researcher concludes that the crystallization of perspective rules has ancient historical roots. This does not necessarily mean it fully developed with humans, but rather that the human practice of drawing as an important means of expression in their life is the primary catalyst for its development and the establishment of rules, among which perspective is one. Therefore, the researcher emphasizes the importance of providing a historical overview of perspective as a foundation for understanding its early formation.

The term “perspective” in Latin, which dominated during the Middle Ages, referred to two concepts that should be distinguished: “The first referred to natural perspective, which deals with optical sciences and light phenomena, what the Greeks called (optike), while the perspective based on geometric facts was then referred to as unnatural perspective.”

(Al-Sheikhly, 1999, p.175)

First: The Concept of Perspective:

The term "perspective" is derived from the Latin language. The word "per" means "through," and "spect" means "look" or "view." From these roots, the word "perspect" emerged, meaning "looking through." Over time, the European languages adapted it into the term "perspective," referring specifically to the two-dimensional photographic perspective (2D), which is entirely different from the three-dimensional (3D) geometric perspective.(Al-Bakri, 1988, p.11)

Thus, perspective is considered a technique for how an object is depicted, taking into account the viewing angle from which the artist or viewer perceives it, whether that angle is below or above the line of sight, along with the proximity or distance, as well as the direction of light. This was not captured in the works of primitive artists. This prompted the researcher to provide a historical overview, trying to cover the stages of development of this concept, its theoretical foundations, and its practical embodiment in the works of artists over a time span of hundreds of years.

Second: Types of Perspective:

From the previous discussion, it is clear that perspective follows a set of rules that are closely related to the sciences of engineering, such as measurement, dimensions, the angle of view, and other factors. Therefore, the researcher believes that the study of perspective goes beyond just being an art form. This view was deepened by the specialists' classification of perspective for study purposes. According to certain criteria, perspective is divided into three main types:

1. Geometric Perspective:

Geometric perspective is divided into three types:

- Human Eye Perspective (Line of Sight Perspective)
- Bird's Eye Perspective (Above the Line of Sight)
- Ant's Eye Perspective (Below the Line of Sight)

2. Pictorial Perspective:

Pictorial perspective has four distinct stages:

- Linear Perspective
- Color Perspective
- Aerial (or Atmospheric) Perspective
- Inverted Perspective

3. Isometric Perspective:

Rules of Perspective:

According to Al-Darasiyah et al. (2010), there are fundamental principles that must be adhered to when depicting an object or shape through perspective, which are summarized as follows:

1. Parallel lines appear to converge the farther they are from the viewer.
2. Inclined lines meet at the vanishing point along the horizon line.
3. Vertical and horizontal lines remain unchanged.

4. Equal distances appear to diminish as they recede from the viewer.

5. Objects of equal size appear to shrink (reduce in size or area) as they move farther away.

(Al-Bakri, 1988, p.15)

The researcher taught both the experimental and control groups on the same day. The experimental group was first instructed using the adaptive learning strategy, while the control group studied the same topic via traditional lectures, continuing for six weeks.

Afterward, the researcher assessed both groups simultaneously, considering it a post-test, conducted two days after the conclusion of the experiment on 24/4/2024 at 10:30 AM, with the assistance of the department's teaching staff.

Previous Studies:

- (Jad Al-Rab, 2023): The study aimed to explore the effect of utilizing an adaptive learning program within the context of learning strategies and its influence on the development of mathematical self-concept among second-year secondary school female students.

- (Hassan, 2021): The study aimed to investigate the impact of an adaptive learning environment based on learning strategies on the development of skills for the Expression Web program.

- (Yassin, 2015): The study sought to assess the effectiveness of problem-centered learning strategies in enhancing perspective skills among middle school students.

1- Basic Concepts in Perspective:

1. Horizon line
2. Vanishing lines
3. Vanishing points
4. Ground line
5. Three-dimensional shapes
6. Vertical and horizontal planes
7. Space
8. Canvas

2-Basic Rules of Perspective:

3- Drawing squares and cubes in various perspectives.

4- The three types of measurement scales.

5- Drawing both three-dimensional and flat shapes.

6- Rules for reflections, shadows, and light in perspective.

Chapter Three

Research Methodology and Procedures

Research Methodology:

The current research employed the experimental research methodology.

Experimental Design:

The research utilized an experimental design with both experimental and control groups, incorporating pre-test and post-test measurements, along with rigorous control mechanisms.

Research Population:

The research population consisted of 67 male and female students, including 11 male students and 49 female students from the second-year students in the Department of Fine Arts, College of Fine Arts, University of Diyala, distributed across two academic sections.

Research Samples:

For the current study, three samples were used: the first being a pilot sample comprising 80 male and female students

(see Table 1).

Research Samples Based on Variables of Sample Nature, Gender, and Total

Total	Gender and Number		**Gender and Number Total** **Sample Nature**
	Females	Males	
80	40	40	Exploratory Study Sample
20	15	5	Experimental Sample
20	15	5	Control Sample

Number two and seven graduates from the Faculty of Fine Arts.

Exploratory Study Sample:

The sample comprised 80 students, evenly split between 40 male and 40 female students, all in their second year at the Department of Art Education, College of Fine Arts, University of Baghdad. This sample was utilized in the test construction process, as well as in validating its

reliability and accuracy (Table 1).

Experimental Sample:

This sample consisted of 20 students—5 male and 15 female—randomly selected from the Department of Art Education, second-year students, College of Fine Arts, University of Diyala. The sample was subjected to the independent variable within the research experiment, which lasted eight weeks, and was taught using an adaptive learning strategy (Table 1).

Control Sample:

Similarly, this sample also comprised 20 students—5 male and 15 female—randomly chosen from the Department of Art Education, second-year students, College of Basic Education, Al-Mustansiriyah University. This group served as the control sample and was taught using traditional lecture-based instruction for eight weeks (Table 1).

Research Instrument:

To conduct the present study, the researcher employed a single research instrument—a test—designed specifically to assess perspective drawing skills (the dependent variable in this research). The test was developed through the following steps:

- Reviewing theses and dissertations relevant to the field of study and closely related disciplines.
- Breaking down the subject of perspective drawing into its fundamental components by examining the curriculum prescribed for second-year students at the College of Fine Arts.
- Consulting experts in the field of assessment and testing, particularly those who have supervised research where skills assessment was the dependent variable.
- Formulating appropriate test items (Appendix 1).

Test Validity:

The researcher submitted the ten test items for evaluation by a panel of five experts in art education and fine arts pedagogy to establish face validity. Any suggested modifications, additions, or deletions were accepted if recommended by three or more experts; otherwise, they were disregarded.

Two weeks later, the researcher collected the experts' feedback and calculated the inter-rater agreement for each item using Cooper's formula. The agreement rate ranged from 100%, where all five experts endorsed an item, to 80%, where one expert rejected an item. These agreement percentages were highly reliable, confirming the test's validity.

To further ensure accuracy, the researcher conducted an additional statistical validity test known as the extreme group comparison method. The test was administered to the 80 students in the exploratory sample, after which their scores were ranked in descending order. The top 27% and bottom 27% were identified, resulting in two groups of 27 students each. The T-value for each test item was then calculated, revealing that all items had T-values exceeding 1.96, with values ranging from 2.72 to 3.12, indicating statistical significance at the 0.05 and 0.01 levels. This confirms that the test items effectively distinguish between high-achieving (top group) and low-achieving (bottom group) students

(Table 2).

Calculated T-Value	Item	Calculated T-Value	Item
2.98	6	2.94	1
3.04	7	3.04	2
3.08	8	2.86	3
2.72	9	3.12	4
2.84	10	2.92	5

All values were statistically significant at both the 0.05 and 0.01 levels, given that the critical T-value was 1.96 at 0.05 with 98 degrees of freedom, and 2.58 at 0.01 with the same degrees of freedom.

Test Reliability:

The reliability of the test in this study was determined using the test-retest method with a 14-day interval between administrations. The correlation coefficient between the two test instances was 0.948, which was statistically significant at both the 0.05 and 0.01 levels.

To further verify reliability, the test was scored by a second researcher, and the correlation coefficient between their evaluations and the original assessor's scores was found to be 0.896. The test forms were then submitted to a third researcher for grading, and the correlation coefficient between their evaluations and the second assessor's scores was calculated at 0.892, while the correlation between the first and second assessors was 0.886.

All correlation coefficients were statistically significant at both the 0.05 and 0.01 levels, demonstrating that the test's reliability remains consistent over time and unaffected by different assessors, affirming its stability and reliability

(Table 3).

Significance	Correlation Value	Nature of Correlation
Significant at 0.05 and 0.01	0.948	Researcher with herself after 14 days

Significant at 0.05 and 0.01	0.896	Researcher with the First Analyst
Significant at 0.05 and 0.01	0.892	Researcher with the Second Analyst
Significant at 0.05 and 0.01	0.886	First Analyst with the Second Analyst

Table 3: Correlation Coefficients Between the Researcher, First Assessor, Second Assessor, and Their Respective Evaluations.

After ensuring the validity and reliability of the test, the researcher proceeded with the remaining procedures of the study.

Equivalence of the Research Samples

Age Variable

To ensure the equivalence of the experimental and control groups in terms of age, the researcher calculated the students' ages in months, then determined the mean age, standard deviations, and variances for both groups. The T-value was subsequently computed and found to be 1.307, which is lower than the critical T-value of 2.024 at the 0.05 significance level.

This indicates that there was no statistically significant difference in age between the two groups, confirming their equivalence in the current study

(Table 4).

Significance at 0.05	T-Value		Data	Standard Deviation	Mean Age	Number	Means, Variances, Calculated T-Values / Sample Nature
	Tabulated	Computed					
Not	2,024	1,307	11,04	3,324	245,2	20	Experimental Sample

Significant			9,746	3,122	244,8	20	Control Sample

Table 4: Means, Standard Deviations, Computed T-Values, And Their Statistical Significance At 0.05.

Prior Experience

To ensure the equivalence of the experimental and control groups in perspective drawing skills, the researcher administered a pre-test to both groups simultaneously on October 8, 2024, at 10:30 AM. This test served as a baseline assessment before the experimental procedures.

Following the evaluation of the tests, a T-test was conducted to compare the groups. The computed T-value was found to be 0.135, which is lower than the critical T-value of 2.024 at a degree of freedom (df) = 38.

This result confirms that there was no statistically significant difference between the two groups in terms of their prior perspective drawing skills, ensuring their equivalence in this aspect

(Table 5).

Significance at 0.05	T-Value		Data	Standard Deviation	Mean	Number	Means, Variances, Calculated T-Values / Sample Nature
	Tabulated	Computed					
Not Significant	2,024	0,135	12,816	3,58	19,142	20	Experimental Sample

			13,104	3,62	18,984	20	Control Sample

Table 5: Means, Standard Deviations, Computed and Critical T-Values, And Their Statistical Significance.

Main Study

The researcher conducted the main study on students from both the experimental and control groups according to the following steps:

• The researcher personally taught both groups on the same day and covered the same subject matter.

• The experimental group was taught using the adaptive learning strategy, while the control group was taught using the lecture method.

• One lesson was taught per week.

• After eight weeks, the researcher informed the students that they would take an exam the following day on all the topics covered.

• On the scheduled day, the researcher administered the exam to both groups in separate classrooms with the assistance of other faculty members. The exam questions were identical for both groups.

• After 40 minutes, the researcher, along with the assistant instructors, collected the exam papers. These responses were then considered post-test data and were subjected to statistical analysis to derive and interpret the research findings.

Statistical Methods

The researcher employed the following statistical methods:

Cooper's Formula

• Used to calculate the expert agreement coefficients on the instrument items.

• The formula applied:

[Continue with the statistical methods…]

$P_a = \frac{AG}{AC+DG} x100$ (cooper,1974,p.39)

The Two-Sample t-test (Steffelin's Equation) was used to assess the test's validity (comparative analysis) when applied to ensure the equivalence of the experimental and control groups in the pre-test, as well as in calculating the research results.

$$T = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1-1)s_1^2+(n_2-1)s_2^2}{n_1+n_2-2}\left(\frac{1}{n_1}+\frac{1}{n_2}\right)}}$$

(Sayyid, 1979, p. 467)

Pearson correlation coefficient was used in calculating the test reliability.

$$\{NEXY - EXEX\}$$
$$\left\{\sqrt{\{[NEX^2(EX)2][NEY^2 - (EY)2]\}}\right\}$$

(Ferguson, 1990, p. 241)

Presentation of Results, Discussion, and Interpretation

Presentation of Results: The statistical analysis of the research data revealed the following:

4.1.01 The first hypothesis was accepted, as there was no statistically significant difference at the (0.05) level between the mean scores of the experimental group and the control group in perspective drawing skills on the pre-test. This was indicated by the computed t-value being lower than the critical t-value for 38 degrees of freedom, with the computed value being (0.135), while the critical value was (2.024). This was further confirmed in Chapter 3, within the scope of matching the experimental and control groups in prior experience (perspective drawing skills) (Table 5).

The null hypothesis was rejected, as there was no statistically significant difference in…

Significance at 0.05	T-values		Data	Standard Deviation	Means	Number	Means, Data, T-values, and Their Significance / Sample Type
	Tabular	Computed					

Significant at (0.05) and (0.01)	2,024	5,480	153,82	3,922	26,664	20	Experimental Sample
			10,536	3,246	20,268	20	Control Sample

At the (0.05) level, there was a statistically significant difference between the mean scores of the experimental group and the control group in perspective drawing skills on the post-test. The researcher rejected this hypothesis due to the computed t-value being greater than the critical t-value for 38 degrees of freedom, with the computed value being (5.480), while the critical value was (2.024) (Table 6).

Table 6

Means, Standard Deviations, and t-values for the Post-Test and their Significance

Sample Type N Means Standard Deviation t-values Significance

Experimental Group 20 26.664 3.922 5.480 Significant(0.05)

Control Group 20 20.268 3.246 10.536 Significant(0.05)

Discussion of Results:

Upon examining (Table 6), it is evident that the performance of the experimental group in the post-test was superior to that of the control group in the same test. This is reflected in the higher mean score of the experimental group, which was (26.664), while the mean score of the control group was (20.268), a difference of more than 6 points. This led to a computed t-value greater than the critical value, indicating that the difference between the t-values is significant at the (0.05) level, in favor of the experimental group. (Table 6)

The logical explanation for the superior performance of the experimental group in the post-test lies primarily in the resources provided by the adaptive learning strategy, which effectively contributed to the improvement of the experimental group's perspective drawing skills. In contrast, the control group's training was limited to lectures. (Table 6)

Conclusions: The researcher concluded the following:

The use of the adaptive learning strategy effectively enhances perspective drawing skills.

The use of the adaptive learning strategy is more effective than lectures in developing perspective drawing skills.

Recommendations: The researcher recommended the following:

The use of the adaptive learning strategy to develop skills in lessons that involve learning techniques such as planning, coloring, and perspective.

An analysis of the use of the lecture method in teaching specific aspects in art education lessons.

Proposals: The researcher suggested conducting the following studies:

The use of the adaptive learning strategy to enhance the perspective drawing skills of students in the Art Education Department.

The use of the adaptive learning strategy to improve the graphic design skills of students in the Art Education Department.

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