The effect of an educational program based on (UDL) in developing the coordination thinking skills of the students of the Institute of Fine Arts in the subject of aesthetic education and artistic appreciation

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Abstract

The aim of the research is to build an educational program based on (UDL) to develop coordination thinking skills, Through the lesson of aesthetic education and artistic appreciation and verification of The impact of the proposed educational program on the development of coordination thinking among students of art institutes in the subject of aesthetic education and artistic appreciation.

The current research community is represented by third-grade students at the Institute of Fine Arts / Baghdad Al-Kark A one-group experimental design with two tests (pre and post) was used After completing the research tools and building the educational program, the researcher applied his experiment, and he used the t-test for two interrelated samples to reach the results The researcher concluded that there is a statistically significant effect at the 0.05 level of significance in favor of the post application, Which indicates its positive impact on the development of coordinating thinking. Therefore, it is recommended to use it in teaching the third grade students at the Institute of Fine Arts the subject of aesthetic education and artistic appreciation through it, the researcher suggests employing the comprehensive design for learning in building the educational program for other subjects.

Keywords: *Education, building programs, universal design (UDL), aesthetic education and artistic appreciation and coordination thinking.*

INTRODUCTION

Our contemporary world is characterized by the scientific and technological progress that individuals have reached in many countries of the world, which constitutes an essential and important dimension of contemporary and modernity in which we live, Because of its effect on the accumulation of knowledge, it has a very important place in communication and scientific culture in various aspects of life. Therefore, this era needs to prepare a developed person who is able to invest his mental abilities and thinking patterns in adapting his circumstances and needs to the change that occurs in his environment and benefiting from it positively. Accordingly, the learning process has become a major focus of the educational faculty, and attention has become focused on the learner's thinking and awareness. Therefore, the educational institution and researchers seek to use

programs and models that increase the development of his mental abilities. To develop learners' thinking skills, care should be taken to develop and adapt curricula in this context, the researcher believes that no book can be identified as a 100% effective means for developing thinking skills.

It is also not possible to achieve the aspirations of those in charge of art education in its fields, knowledge and skill materials, and the accompanying teaching of attitudes that sharpen thinking and develop conscience by studying a book only.

The researcher also confirms that neglecting the employment of teaching according to the results of development in the processes of teaching thinking, It contributed to the decline in the level of education and became traditional, not by its methods, but because it does not take into account the learner's nature, characteristics, tendencies, and evolving trends, as well as the conditions of the educational environment in which students learn and interact with its components, which are often not commensurate with the changes of the current era. This in itself is an additional problem, especially with the development of the science of instructional design and the emergence of what is known today as the universal or comprehensive design of education (UDL).

It is an abbreviated symbol formed from the first letters of the description Universal Design for Learning, which confirms the provision of supplies and the teacher's use of modern teaching methods and methods in implementing education requirements in a way that provides flexibility in the methods of presenting knowledge, ways of responding to learners, and their participation in learning situations. Therefore, the researcher believes and confirms that there is a real problem in our educational institutions, despite their efforts to develop, represented by not keeping pace with educational development and encouraging attitudes that develop thinking instead of negative reception attitudes. Therefore, the researcher formulated his problem in the following main question:

What is the effectiveness of an educational program designed for artistic appreciation based on (UDL) In the development of coordination

thinking among students of the Institute of Fine Arts?

The importance of research:

the importance of the current research is evident in several points, most notably the following:

- The importance of the target sample being messengers of beauty and aesthetic awareness.
- The importance of artistic education and artistic taste as a language and aesthetic education.
- The current research may contribute to the development of education by building a program that adopts the methods and methods of the comprehensive design of education, and the design of educational programs within the framework of the development of education by analyzing the relationship between human knowledge and the performance it provides.
- The research is a response to modern trends in scientific and international education.
- Directing the attention of those responsible for developing and designing curricula according to the principles of comprehensive instructional design for learning (UDL).
- The lack of a previous study, according to the researcher's knowledge, that dealt with building an educational program according to the comprehensive educational design for learning with the subject of artistic

appreciation for the development of coordination thinking.

• Through the development of coordinating thinking, the learner has been able to understand the parts of the educational situation or what is related to the educational material and divide it into its smaller components, allowing them to conduct analysis, classification, composition, organization and then re-composition.

Research aims:

The current research aims to achieve the following:

o Building an educational program based on (UDL) to develop coordination thinking skills through a lesson in aesthetic education and artistic appreciation.

o Verifying the effectiveness of the proposed educational program in developing coordination thinking among students of art institutes in aesthetic education and artistic appreciation.

Research hypothesis:

To achieve the objectives of the second research and to ensure the effectiveness of the proposed educational program, the researcher assumes the following zero hypotheses:

"There are no statistically significant differences at the level of statistical significance (0.05) between the mean scores of the experimental group students regarding their response to the coordination thinking test, before and after."

search limits:

The current search is limited to:

First: Human Limits: Students of the Institute of Fine Arts - morning study / second stage.

Second: Objective Boundaries: An educational program based on (UDL) in the subject of aesthetic education and artistic appreciation according to the following coordination thinking skills: examining and fragmenting information, making comparisons and distinguishing between similarities, identifying differences, predicting, observing relationships, building criteria, synthesis, classification conducting measurement and evaluation).

Third: Spatial Boundaries: The Institute of Fine Arts / Al-Karkh Al-Oula.

Fourth: Time limits: The academic year 2022-2023.

define terms:

The researcher identified a number of important terms in his current research and tried to define them as follows:

1- The program for the program in terms of definitions, including:

1-2: Definition of (Good, 1979).

"a summary of the procedures, educational reinforcements, and topics offered by the school over a specific period of time". (Good-1979- 446-265)

2-2: Definition of (Hussein, 1985)

"a set of educational activities or materials directed to a specific category of learners for the purpose of providing them with the knowledge, skills and attitudes they need in a particular field of study, or for the purpose of enhancing these aspects for them, as the time period for implementing the program takes a few study hours or a whole year". (Hussein: -1985 27)

Practical definition of the educational program:

The researcher defines the educational program procedurally in a manner consistent with the current research purposes as: an integrated educational system in the subject of aesthetic education and artistic appreciation,

consisting of goals, content, teaching methods and methods, educational activities and their means, and means of evaluation, built by the researcher in the light of the needs of students of the second stage of the subject of tasting. Technical from the point of view of teachers and students and according to the comprehensive educational design (UDL), its purpose is to develop their coordination thinking skills.

3- Development in the terminology has definitions, including:

3-1: Definition of (Muss, 1976)

“A process that brings about changes in form and function, and it has seasons and a regulated sequence.” (Muss, 1976 p:99)

3-2: Definition of (Muhyiddin, 1978):

"A fundamental change to traditional lifestyles, dealing with changing attitudes towards inherited values And follow new goals and means.” (Mohyiddin, 1978, p. 17)

Operational definition of development:

The researcher defines development procedurally in a manner consistent with the purposes of the current research as: the process of developing coordination thinking skills among the current research sample / students of the second stage at the Institute of Fine Arts / Baghdad Al-Karkh, carried out by the researcher through the educational program prepared in the subject of aesthetic education and artistic appreciation prepared by the researcher In the light of their needs and apply it in the subject of aesthetic education and artistic appreciation and according to the comprehensive educational design (UDL).

4- Universal Design for Learning

Definition of instructional-learning design (idiomatically):

The US government (UDL) defines Universal Design for Learning through the Higher Education Opportunity Act of 2008 as:

It is: “a valid scientific framework to guide educational practice that provides flexibility in the ways of presenting information, in the ways in which students respond or demonstrate knowledge and skills, and in the ways in which students are involved” (Edyburn, p2010).

Operational definition of Universal Design for Learning:

Based on the foregoing, the researcher defines comprehensive design for learning as: (a system or educational design based on theoretical and practical frameworks that contain a number of mechanisms to provide knowledge or skill in ways that are compatible with the capabilities of the learners of the current research sample and meet their needs that would allow them to learn effectively to develop coordination thinking skills) .

5- Coordinated Thinking

5-1: Definition of (Refaat and others define, 2012):

“the ability to perceive the integrated pattern under which the parts move while dealing with and analyzing these parts without ignoring the fact that these parts underlie a holistic meaning”(Refaat Mahmoud, Mansour Abdel Fattah and Amani Raafat, 2012, 49).

6-2: Definition of (Ayman, 2007):

"The ability that leads individuals to understand the parts of the situation of interest, and its fragmentation into its smaller components, allowing other operations to be performed on these parts, such as analysis, classification, arrangement, organization, and then recombination, and then it combines the two patterns of analytical and synthetic thinking".

Operational definition of coordination thinking:

And it is defined in this research procedurally as: the degree of the student that he obtains after answering the coordinating thinking scale prepared by the researcher for the purposes of his current research according to the skills: (examining and fragmenting information, making comparisons and distinguishing between similarities, identifying differences, predicting, observing relationships, building standards, Composition, classification, measurement and evaluation procedure).

Theoretical background"

The concept of instructional-learning design:

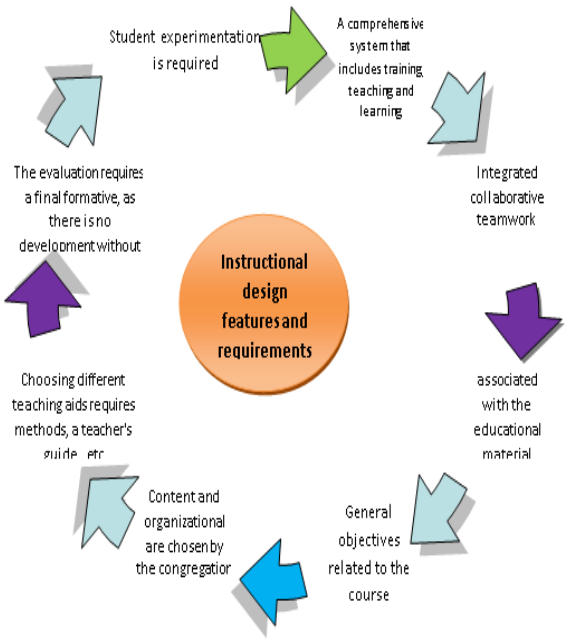
The science of instructional design is one of the modern sciences that appeared in the last years of the twentieth century (15-20 years) in the field of education. Designing, analyzing, organizing, developing and evaluating them. This is in order to design educational curricula that help learning in a better and faster way, and help the teacher to follow the best educational methods in the least possible time and effort. (Al-Hilah 2003, p. 25)

The origins of design in the educational process go back to research in the fields of psychology and education, which provided us with an inexhaustible source of knowledge and skills necessary to develop education strategies and techniques, and led to the emergence of different learning theories such as procedural, cognitive, and humanistic theories. Building educational designs can be described as follows:

First: It is a concept capable of growth and development.

Second: It is a process that includes successive steps.

Third: These designs have outputs that can be better applied and measured in the classroom, and the systems are linked to the modern and contemporary concept of the educational process. The researcher summarizes the concept of instructional design, its functions and requirements as follows:



Universal Design for Learning (UDL):

One of the most important benefits that we can reap from adopting educational design is that this type of activity gives the parties to the educational process the freedom and ability to apply both learning and teaching theories and organize them in a way that leads to raising the efficiency of the performance of teachers and learners. Therefore, the concept of comprehensive design for learning can be defined as a technique for developing education, its experiences and environments, and making it more suitable for learners. To improve educational activities and make them more effective.

As for the factors or sources on which the comprehensive design for learning relied in building its principles and scientific foundations at the beginning of its emergence, they are as follows:

- Research and studies in education and psychology, especially those related to individual education, individual differences, and programmed education, the basis of which was laid by the scientist (Skinner).

- Research and studies related to learning theories and human behavioral sciences, which are specialized in controlling stimuli, responses, and reinforcement during the educational situation.

- Research and studies conducted in the field of teaching aids and their role in the teaching and learning processes.

- The engineering technology that examined the importance of the learner's exercise of his own efforts and helping him to progress in his learning according to his own speed. (Qatami, 1998, p. 111).

The researcher believes that the comprehensive design for learning (UDL) is an updated image of educational design that is concerned with the educational patterns of learners and seeks to enhance the attitudes of educational design with additional roles for the learner and educational alternatives that take into account his tendencies and interests. How to prepare educational programs, school curricula, educational projects, educational lessons, and the entire educational process in a way that ensures the achievement of the set educational and learning goals, and it also means the comprehensive framework for learning that provides flexibility in the methods of providing information, methods of explanation, and patterns of response to learners, hence the comprehensive design for learning UDL is A science related to the methods of planning and implementation of the elements of the educational-learning process, and the researcher believes that it is compatible with analyzing tasks, and photographing them in forms and maps before starting their implementation. content analysis, organization and development. implementation, management, and evaluation. (Al- Hilah, 2003, p. 69)

The principles of Universal Design for Learning (UDL) can also be identified as follows:

- first principle: representation, which means providing multiple means for presenting and displaying information.

- second principle: participation, which means providing multiple means for learners to respond that meet their needs and take into account the individual differences among them.

- Third principle: Allow learners to respond and use learning tools.

educational programs:

In the context of the researcher's endeavor to build an educational program, he had to know the general and main areas on which the construction of the program is based, and the basic matters that should be taken care of in order to build it in the light of it. The other, as confirmed by recent trends advocated by educationalists and psychologists, centered on "analyzing the educational process according to logically designed systems and in successive and sequential steps that contribute greatly to the development of the teaching process and achieving more effectiveness for the learner. This is done by designing the learner's environment in a manner compatible with his abilities, trends, and perceptions" (Woolfik: 1987: p.190), and the educational program is a technical means that relies on science and logic in building its goals, content, configurations, control, and centrality in its procedures, operations, and results, so the concept of the educational program is a group of factors organized together in psychological formulas And educational in order to achieve specific goals required by the learners through their interaction (Hamdan, 1985, p. 51).

And Kane and Briggs (Gagne & Briggs) see in their educational model, which was built in 1979, that the learning process "takes place through the use of (a teacher / teacher) who organizes and directs the individual or collective learning process, as the learning that can be observed occurs as a result of its interaction with the elements of the environment education that is designed according to his needs, abilities, abilities, and readiness" (Qatami, 1998, p. 14).

The steps followed by the tutorial designer can be described in the following points:

- It is organized and arranged sequentially, step by step.
- It consists of several elements and processes that interact with each other.
- There is a correlation between its various elements.
- The program is considered integrated by itself.
- The program is an educational environment that contains small units, and each unit has a function within the program, and together they form an integrated unit.
- The educational program determines the quality of educational outcomes through the changes that occur through it. (Gagne & Briggs, 1979, P: 9)

coordination thinking:

Global interest in the subject of thinking increased in the second half of the twentieth century, and models of thinking and programs appeared in accordance with the principles of education and the investment of creative capacities and energies.

(Abu Jadu and his colleague, 2010: p. 25)

In this context, the researcher confirms that teaching coordination thinking is an important part of the process of teaching thinking in educational situations, and requires the learner to search for knowledge through a set of skills that help him organize the components of knowledge and generate answers about educational tasks .

Coordination thinking skills:

It has been dealt with and identified in several literatures and studies, including: (identifying traits or traits, defining characteristics, conducting observation and seeing relationships, differentiating between the similar and the different, comparison and contrast, grouping / classification, classification, building a standard, ordering and setting Priorities and making sequences, seeing relationships and finding patterns, guessing - predicting - anticipating, determining cause and effect, making measurements, synthesis - synthesis, reflective capacity (Zaki, 2018: p. 45), and the success of the program for teaching thinking skills depends on the extent to which other elements are provided And whether the teacher uses a direct or indirect method in teaching any thinking skill, the clarity of the strategy used by the teacher in implementing students' applied activities on the content of the curriculum is a condition It is essential that he must be keen on before starting his program in teaching thinking, and therefore the following steps can be followed, as reported by Al-Surour, Nadia Hale:

- Present the skill briefly
- Explain the skill.
- Clarifying the skill with an example chosen by the teacher, and linking it to a topic in the curriculum.
- Review the application steps used by the teacher.
- Applying the skill by the students with the help of the teacher.

 Review and reflect on the previous steps. (Al-Surour, 2005: p. 20)

The research summarizes them in the following table:

Previous studies:

First: Studies that dealt with the comprehensive design for learning (UDL):

Study Name: (Al-Otaibi: 2020)	
Title	The effectiveness of a proposed unit in science according to the principles of Universal Design for Learning (UDL) in developing science fiction among intermediate school students in the Kingdom of Saudi Arabia
Abctrect	It aimed to design a proposed unit in science according to the principles of comprehensive design for learning for the intermediate stage in the Kingdom of Saudi Arabia and to identify its effectiveness in developing imagination. The sample of the study consisted of (39) female students from the first intermediate class. The researcher used the descriptive analytical approach and the semi-experimental approach, used a measure of science fiction and factored the data with the t-test, and reached the effectiveness of the proposed unit in science according to the principles of Universal Design for Learning (UDL) in developing science fiction among middle school students**.**
Study Name: (Salem: 2019)	
Title	Increasing the teaching competence of teachers of the deaf and hard of hearing through the principles of universal design for learning.
Abctrect	It aimed to increase the teaching competence of teachers of the deaf and hard of hearing in the Kingdom of Saudi Arabia. The study sample consisted of (40) teachers. The descriptive approach, the experimental approach, the teaching competency scale, and the t-test were used. It found a positive effect for the benefit of teachers in teaching competence according to the principles of comprehensive design for learning (UDL).
Study Name: (Al-Sheikh: 2017)	
Title	The effectiveness of a proposed training program for preparing learning materials for science lessons according to the principles of Universal Design for Learning (UDL) on science students who are enrolled in the educational diploma program.
Abctrect	It aimed to prepare learning materials for science lessons according to the principles of Universal Design for Learning (UDL). The study sample consisted of science students who are teachers enrolled in the educational diploma program. The descriptive method and the experimental method, an observation form, and percentages were used, and I found a positive effect in favor of the proposed training program to prepare learning materials for science lessons according to the principles of Universal Design for Learning (UDL).

Second: Studies that dealt with coordination thinking: The research summarizes them in the following table:

Study Name: (Kazem: 2020)	
Title	The effect of the teaching trip model on the achievement of intermediate first-grade students in science and their coordination thinking.
Abctrect	The aim was to identify the effect of the teaching journey model on the achievement and coordination thinking of intermediate first-grade students in science. I used the experimental method, an achievement test, the coordination thinking scale and the statistical portfolio.
Study Name: (Abu Zaid Study: 2019)	
Title	The effectiveness of a modified unit according to conceptual modeling in developing scientific argumentation skills in biological learning and coordination thinking among secondary school students.
Abctrect	The aim of the study was to identify the effect of a unit prepared according to conceptual modeling in developing the skills of scientific argumentation and coordination thinking among secondary school

	students. The study sample consisted of 70 students. The scientific debate in learning biology and coordination thinking among high school students.
Study name: (Mohammed's study: 2016)	
Title	The effectiveness of the independent studies approach in teaching science in developing some scientific concepts and coordination thinking skills among outstanding students in the preparatory stage.
Abctrect	It aimed to identify the effectiveness of the independent studies approach in teaching science in developing scientific concepts and developing coordinating thinking among outstanding students in the preparatory stage. And the coordination thinking skills of outstanding students in the preparatory stage.

Research Methodology:

The current research aims to build an educational program based on (UDL) to develop coordination thinking skills in artistic appreciation through the lesson of aesthetic education and artistic appreciation, and its effectiveness is known in the development of coordination thinking, so the researcher adopted the descriptive approach to build the program, and the experimental approach to know its impact.

research community:

The current research community is represented by the students of the Institute of Fine Arts / Baghdad Al-Karkh. The researcher intentionally chose it because of its proximity to its residence and the cooperation of the institute administration with the researcher, He obtained his information from the General Directorate of Teacher Preparation, Training and Educational Development in the Ministry and the Institute. The current research community included students from the following institute departments: (music, theater, plastic arts, calligraphy and decoration, cinema, design), and the sample was divided according to the research procedures and requirements to the following:

- The sample for identifying needs: It was determined by the students of the third stage for the academic year (2021-2022), which numbered (120) students.
- The statistical sample for examining the tools needed for the research: It was determined by the students of the second stage for the year (2021-2022), and their number is (169) students.
- The sample for applying the proposed educational program and verifying its effectiveness: It was determined by the students of the second stage in the Department of Fine Arts for the academic year (2022-2023).

Experimental design:

The experimental design was determined with one group with two tests (pre and post), which requires conducting the pre-test, then introducing the independent variable (the educational program in artistic appreciation), and after completing the experiment, the post test is conducted to identify the independent variable in coordination thinking. The following table shows this design used to verify the goals and hypotheses of the current research.

group design	Pre-test	the independent variable	Post-test
one experimental	coordination thinking	Tutorial prepared according to UDL	coordination thinking

Equivalence procedures:

In order to reach a single and equal level for the research sample and to avoid variables that may affect the research results in terms of individual differences between students, the researcher conducted equivalence on his research sample by taking the above variables (previous experience (cognitive test - coordinating thinking test, chronological age, intelligence) and then the statistical treatments of these variables were carried out through the law of the coefficient of torsion, as the values were confined between (±3), which indicates a

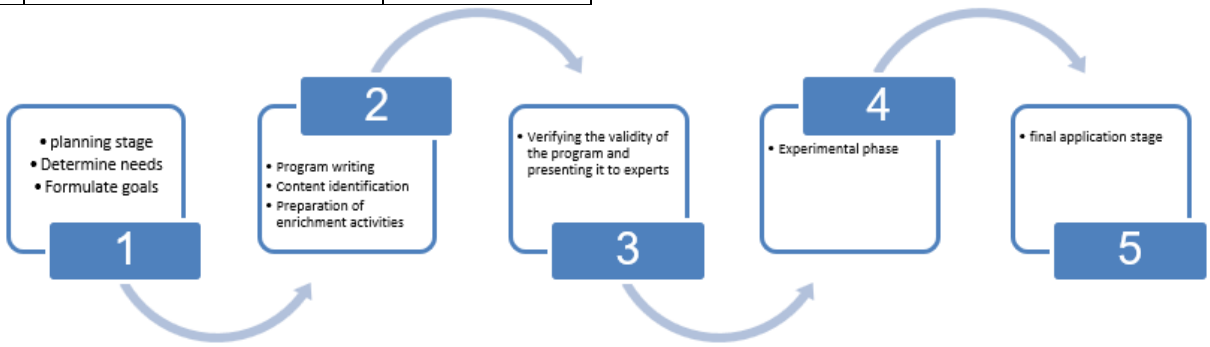
good distribution of the sample and its moderate spread within each of the three research groups, as shown in the following table:

No	Equivalent subject variables	Torsion values
1	Previous experience	1.452
2	chronological age	0.534
3	intelligence	2.434
4	Tribal coordination thinking test	1.442

It is clear from the above table, after applying the torsion coefficient equation, that they are moderately distributed, which indicates that they belong to a homogeneous society, and therefore the sample members are equal to these variables.

Tutorial building procedures:

The researcher went through the following stages to build his educational program:



Experiment time:

After the school hours were stable, and the daily lesson schedule was fixed, and after the researcher completed the requirements for conducting the experiment, he started applying the experimental tools on Monday 10/19/2022, and in the second lesson of the second week, the pre-application was completed, and the researcher introduced the students of the experimental group to how to use The educational program and the course of the study in it, the time of the lesson was two study hours per week distributed over the duration of the application.

Coordinating thinking test:

In view of the absence of an appropriate coordinating thinking test in aesthetic education and artistic appreciation, the researcher built the test according to the following:

- Previous studies and literature.
- Discussing the supervisor, experts and those with specialization.
- Examination of coordination thinking skills, which the researcher found, after reviewing a number of sources and research on coordination thinking, that they are (15) skills, which were used as domains and converted into test paragraphs.
- Formulation of two paragraphs for each skill of coordination thinking, so that the test consists of (30) paragraphs that were presented in their initial form to experts and specialists, and most of them were approved by obtaining an agreement rate of 90%.
- For the purpose of correcting the test and calculating the degree according to the opinion and directions of the experts, the wording of the answers of some paragraphs was modified, and they were placed in a multiple-choice type test, and for the purpose of focusing the students' answer automatically, the answer was reduced to two alternatives, one correct and the other wrong,

and one mark was determined for the correct answer, and zero For the wrong answer, the total score for the coordination thinking test becomes (30).

Validity of the test:

The researcher found the apparent validity of the coordinating thinking test, by presenting it to a group of arbitrators who are experts in art education, teaching methods, and educational and psychological sciences.

Correlation of the paragraphs with the total degree (internal consistency):

The researcher used Pearson's correlation coefficient to extract the correlation coefficient between the scores of each paragraph and the total score of the individuals on the scale. To measure what it was set for and as placed in the following table:

Test section	Paragraph correlation coefficient with the total score	Test section	Paragraph correlation coefficient with the total score	Test section	Paragraph correlation coefficient with the total score
1	0,716	11	0,665	21	0,611
2	0,723	12	0,716	22	0,721
3	0,703	13	0,720	23	0,779
4	0,633	14	0,618	24	0,759
5	0,648	15	0,753	25	0,724
6	0,583	16	0,718	26	0,655
7	0,755	17	0,805	27	0,678
8	0,349	18	0,727	28	0,611
9	0,720	19	0,705	29	0,726
10	0,672	20	0,710	30	0,701

Calculation of the stability coefficient:

The researcher used the half-halves method, and after correcting the students' answers for the test, it was divided into two halves. , and it reached (0.82), and since dividing the test into two halves, it loses a set of characteristics that affect the correlation coefficient, so this situation was modified, using the Spearman-Brown equation (Al-Omar, 1990: p. 337), so the stability coefficient reached (0.91).

Experiment application:

The researcher started applying the experiment as of Monday 10/19/2022, as it started in the first and second week, he completed the pre-application, and then the researcher began teaching the students of the experimental group according to the educational program designed for research purposes, and the experiment ended on Monday 12/19/2022.

Presenting and discussing the results:

The researcher verified his goals as follows:

The first objective: to build an educational program based on (UDL) to develop coordination thinking skills in artistic appreciation through the lesson of aesthetic education and artistic appreciation.

This goal was achieved in the research procedures by defining the needs from a point of view by defining the students' needs from aesthetic education and artistic appreciation by

presenting the results of achieving the main areas and arranging them in the light of the weighted mean and the percentage weight, and then presenting the results of achieving the paragraphs of each of these areas and arranging them in the light of The weighted mean and the percentage weight for each of the paragraphs that represent the needs, and in the light of these needs, the program was built and applied during the research period.

The second objective: to achieve the objective of the second research and to make sure of the impact of the proposed educational program, the researcher assumed the following zero hypothesis: "There are no statistically significant differences at the level of (0.05) between the mean scores of the students of the experimental group regarding their response to the coordination thinking test before and after".

It was applied before and after on the research group at the Institute of Fine Arts in Baghdad / Al-Karkh, the first department of plastic arts / the second stage for the academic year (2022-2023), and the number is (24), and after obtaining the students' grades, the researcher treated these grades statistically using the t-test equation (T-test) for two related samples to find the significance of the difference between the two applications, and the results were according to the following table:

significance level 0.05	**t-test**		**Deviation normative**	**Average Arithmetic**	**Size the sample**	**application**	**variable**
	bular	culated					
is statistically in favor of Post application	1.714	13.291	2.396	8.500	24	Tribal application	thinking coordinator
			4.594	20.167		Post application	

It is clear from the above table that the arithmetic mean of the achievement of the students of the experimental group who were taught by the researcher in the proposed program in the post-test, amounting to (20.167), is greater than their achievement in the pre-test, which is (8.500), in favor of the scores of the students of the experimental group in the post-test, and when testing this difference between the two groups Using the t-test equation for two interrelated samples, the researcher found that the calculated t-value amounted to (13.291), which is greater than the tabular T-value of (1.714) at a degree of freedom (22) and a level of significance (0.05), and this indicates the rejection of the null hypothesis that It states that there are no statistically significant differences, and the alternative hypothesis is accepted, which confirms the existence of statistically significant differences between the mean scores of the experimental group students in the pre and post applications of the coordination thinking test in favor of the post application, after the researcher studied them through the educational program based on (UDL), and this indicates On the effectiveness of the educational program built by the researcher in the light of the Universal Design for Learning (UDL) and students' needs in developing coordination thinking.

Interpretation and discussion of the results:

It is clear from the previous results that the program has an impact on the development of coordinating thinking, and this is what was indicated by the results of the post-application as presented. Comprehensive design for learning according to the needs of students plays a positive role in meeting their academic requirements, and responding to their needs that were diagnosed before applying the experiment and the researcher's use of different teaching methods and teaching aids

has a positive impact on enhancing their grades. These methods allowed students to exercise their roles in learning and to be more responsible towards Their cognitive progress and adoption of coordination thinking steps.

The results of the current research agree with the results of (Al-Otaibi Study: 2020), which summarized the existence of statistically significant differences (at the level of 0.05) between the mean scores of the students of the experimental group and the students of the control group in the post application, as well as with the results of (Al-Salem Study: 2019) that confirmed (Increasing teaching competence through the principles of comprehensive design for learning), and also with the results of (Al-Sheikh study: 2017) that there was a positive effect in favor of the proposed training program to prepare learning materials for science lessons according to the principles of comprehensive design for learning (UDL).

Conclusions:

Through the results of the current research, the researcher concludes the following:

- The effectiveness of the educational program based on the comprehensive design for learning (UDL) in teaching aesthetic education and artistic appreciation.
- The effectiveness of the educational program based on the comprehensive design for learning (UDL) in developing coordination thinking skills among students of the Institute of Fine Arts in Baghdad / Al-Karkh, Department of Fine Arts, Phase II.

Recommendations:

In view of the effectiveness of the program and the achievement of the objectives of the current research, the researcher recommends the following:

- Developing the content of the Aesthetic Education and Artistic Appreciation book, and adopting the program as a starting point for its development.
- Training teachers and teachers on the comprehensive design for learning.
- Using modern methods that meet the aspirations of the learners and enhance their roles in the lesson.
- Introducing learners to their learning objectives and confirming them through lessons.
- Crystallizing positive attitudes towards learning by taking into account the needs of the learners.

Proposals:

The researcher suggests the following:

- Conducting a study on the impact of the program on developing critical thinking skills.
- Carrying out a study on the impact of the program on developing innovative thinking skills.

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