

How to Cite:

Ahmed, M. M., Gerges, R. N., & Ismail, R. G. (2022). The effectiveness of a strategy based on the theory of multiple intelligences in the achievement and clever thinking of second-grade female students in the middle school in science. *International Journal of Health Sciences*, 6(S4), 9269–9283. <https://doi.org/10.53730/ijhs.v6nS4.11962>

The effectiveness of a strategy based on the theory of multiple intelligences in the achievement and clever thinking of second-grade female students in the middle school in science

Prof. Dr. Ma'rib Mohammed Ahmed

Mosul University, College of Education for Pure Sciences

Prof. Dr. Raghad Nawaf Gerges

Mosul University, College of Education for Pure Sciences

Raghad Ghanem Ismail

Mosul University, College of Education for Pure Sciences

Corresponding author email: raghadghanim19@gmail.com

Abstract---The current research aims to identify the effectiveness of teaching with a strategy based on the theory of multiple intelligences in achievement and the clever thinking of Second intermediate students in Science subject. For the purpose of verifying the objective of the research, the zero hypothesis was formulated: There is no statistically significant difference between the average achievement scores of female students in the experimental group who study in accordance with the multi-intelligence strategy, and the female officer group students who study in the normal way. There is no statistically significant difference between the average skilled thinking scores of the students of the experimental group who study according to the strategy of multiple intelligences, and the students of the control group who study in the normal way.

Keywords---multiple intelligences, effectiveness strategy, middle school science.

Introduction

The current research was limited to intermediate students at Al-Batraa intermediate School for Girls one of the public morning schools of the General

Directorate of Nineveh Education for the academic year (2021-2022). The researcher used the experimental design with partial control of the two equal groups, which includes two groups:

One is experimental and the other is control, and according to this design the researcher chose Al-Batraa intermediate School for Girls in a deliberate way, where division B was chosen to represent the experimental group and included (31) students studied according to the strategy of the theory of multiple intelligences, and Division A to represent the control group and included (31) students studied in the normal way. The two groups were rewarded in the variables of time age, intelligence, and previous achievement, as well as the researcher adjusted the extraneous variables such as the secrecy of the experiment and the processes related to maturity and experimental extinction. The researcher formulated behavioral objectives for the scientific material, which amounted to 111 behavioral objectives, as well as the researcher (16) prepared a teaching plan for the experimental group and (16) a teaching plan for the control group.

With regard to the research tools, the researcher prepared the collection test, which consisted in its final form of (30) paragraphs of the type of selection of multiple of four alternatives the smart thinking test, which was prepared after the researcher was informed of a number of tests of clever thinking. In order to verify the apparent honesty and find the stability factor, the researcher presented the two paragraphs with models of plans to a committee of arbitrators, in order to verify the apparent honesty and find the stability factor, after which the two instruments became ready for application and calculated the virtual honesty of it by presenting it to a group of experienced and competent arbitrators and stability was calculated using the equation of Alpha Cronbach and calculated the factor of difficulty and its discriminatory ness and the effectiveness of the wrong alternatives for all paragraphs.

The experiment was applied in the first course of the academic year (2021-2022) to the research sample of second intermediate students where the researcher taught the two research groups and after the end of the experiment the results were statistically analyzed using the t-test of two independent samples. The results showed that the experimental group who studied the strategy of multiple intelligence theory outperformed the female students of the control group who studied in the usual way in the collection test and test of clever thinking.

Research problem

The world today is undergoing a change that is described as the world of technology and communication. Making educators, community leaders and parents face unprecedented problems related to how to prepare today's students to face the challenges of tomorrow's world, as the old methods are not enough to keep pace with it. In a new way, and then the goal of the educational process became not limited to students acquiring current knowledge and facts, but rather to develop their abilities to think in general and clever thinking in particular, and to make them better deal with the increasing and accelerating information day after day (Alwan, 89: 2012) a necessary need; Because the world has become

more complex as a result of the challenges posed by information and communication technology in the various stages of human life, and success in facing these challenges does not depend on knowledge as much as it depends on how it is used and applied (Jarwan, 1999:12). Accordingly, in light of these innovations in education, education in the intermediate stages needs to search for modern teaching methods, methods and strategies to achieve the goals of education and help students to practice smart thinking and raise their level of achievement. Attainment and clever thinking are two processes that go hand in hand, so the lack of achievement is offset by weakness in the practice of thinking, as the results of many studies and research in the field of thinking indicated that there is a shortcoming in academic achievement and a weak ability to practice thinking as a study (Owaid, 2019).

In light of the foregoing, the researcher felt that the usual teaching methods used in teaching this subject in the intermediate stage did not achieve the goals of teaching science, in addition to that it did not help students to develop their various thinking skills, including skillful thinking skills, so the researcher tried to research and investigate what contributes In solving this problem related to the teaching of science and alleviating its learning difficulties for second-grade students in middle school, hence its quest to search for modern teaching strategies appropriate to the teaching reality in our schools on the one hand, and the educational needs of our students in science on the other hand, so it was chosen on the strategy It is based on multiple intelligences that may contribute to achieving a more effective teaching of this subject, and raising the level of their skillful thinking; This is due to the novelty of this strategy, and this is what the results of the study indicated, such as the study of Abdul Redha and Salman (2021) and based on the foregoing, the researcher identified the research problem by answering the following question: What is the effectiveness of teaching using a strategy based on the theory of multiple intelligences in the achievement and clever thinking of second-grade female students in the middle school in science?

The importance of the research

that education has a great and important role in the life of societies and nations. It forms the basis for their development, prosperity, and means of their survival, continuity and stability, which requires us to be prepared to face the challenges that may hinder the progress of these societies, especially since they have become a great danger to them; This is because it is linked to the needs of society in building a person's personality, forming his experiences and cultures, and the incentive to determine his energies and the continuation of his scientific activity. (Gardner, 2004: 122) The educational process is the basis of humanity's righteousness and success, and it is considered a tremendous force that purifies and purifies souls, because of its great importance in preparing individuals and developing them, refining their talents and sharpening their minds, and its impact on raising the level of society to work, diligence, cohesion and compassion, and it is a means To solve problems, advance individuals and advance society. (The Resource, 2008: 21)

The teaching method has an impact on students' achievement, and this justifies the education scholars' interest in it, and adopting the best of them. The

educators have reached impressive results as a result of their research and experiences. They found for us basic methods of teaching whose application varies with regard to the levels of students on the one hand, and the nature of the topics on the other hand. The method is the assistant that leads students to assimilate knowledge and build abilities and skills, in light of organizing the educational situation, and facilitating ways for students to achieve the goals of the curriculum (Hamidi, 2012: 12) Their specializations and scientific trends, and given the cultural, social and educational effects of intelligence, societies of all diversity have been keen to study and investigate this concept from various aspects (Yameen, 2013: 23). Therefore, since its emergence, this theory has caused a major transformation in the educational field, especially with regard to the educational arena. Appropriate teaching methods (Deing, 2004: 96-11).

The theory of multiple intelligences also changed the teachers' view of their students and the methods of dealing with them according to their mental abilities (Amer and Muhammad, 88: 2008). And that the use of the multiple intelligence strategy in the classroom leads to the learner's acquisition and retention of the learned material, increasing his memorization skills, increasing his motivation to learn, increasing cooperation between him and his colleagues and teachers, and providing modern teaching strategies that focus on teaching students how to think and help raise their level of achievement (Anderson, 1998:338). As for achievement in its modern sense, it means the information and skills acquired by learners as a result of studying a subject, or a specific unit of study (Samara and Al-Adili, 52:2008). There are theorists who have done research to find the impact of the theory of multiple intelligences on psychological aspects, including thinking, which is an essential element in the cognitive structure of the human being. Inactive processes to mental activity (Aziz, 2005:3)

Thinking is a cognitive process that uses the mind effectively, and that the best methods that can be used to develop thinking is to create educational situations and activities that help the individual to reach new information that can be employed and used in situations and problem solving. (Dunkin, 1987: 409) Thus thinking, including clever thinking, is characterized as high-level thinking with skills such as analysis, synthesis, evaluation and reflection, and also clever thinking means the set of behaviors that thinkers use to enhance their learning so that they move beyond literal fields and build knowledge towards deep understanding.

(Wilson & Jan, 2009: 126. Based on what was mentioned, the importance of the current research emerges as follows:

- ❖ This research came in response to the scientific progress and technological development that the world has witnessed in all matters, especially the methods of teaching science, which have developed tremendously.
- ❖ The need to use modern teaching models and strategies that emphasize the interaction between the teacher and the student, and make the student the main focus of the educational process, while the role of the teacher is the guide and guide.
- ❖ That science education goes beyond the limits of students' memorization and indoctrination, so there must be an important role for the students

themselves in the education process, so that education includes multiple aspects, including skills, emotional and psychological, and the need for its development among middle school students.

Research objective

- 1) Recognizing the effectiveness of a strategy based on the theory of multiple intelligences in the achievement of second-grade students in the middle school in science.
- 2) Recognizing the effectiveness of a strategy based on the theory of multiple intelligences in the skillful thinking of second-grade intermediate students

The two research hypotheses

"There is no statistically significant difference at the significance level of 0.05 between the average degrees of achievement of the experimental group students who study according to the strategy of multiple intelligences, and the students of the control group who study in the usual way." "There is no statistically significant difference at the level of significance of 0.05 between the average degrees of skillful thinking among the experimental group students who study according to the strategy of multiple intelligences, and the control group students who study in the usual way."

Research limits

- Spatial boundaries: second-grade middle school students (Petra) for girls, one of the intermediate schools affiliated to the General Directorate of Education in Nineveh Governorate.
- Time limits: the first semester of the academic year (2021-2022)
- Objective knowledge limits: the study subject includes three chapters of the science book, which is prescribed by the Ministry of Education, the General Directorate of Curricula, to be taught to students of the second intermediate grade for the academic year 2021-2022, 3rd edition 2019

Define terms

Multiple intelligence

Gardner, 1999: Intelligence is the ability to solve problems or create products that have value in one or more cultural environments, and that intelligence is the ability to analyze specific patterns of information in specific patterns of ways (Gardner, 37: 1999).

The researcher defines it procedurally: the intelligence patterns of the students (the research sample), which were determined by applying the Gardner Multiple Intelligences Scale for the purposes of equivalence, and teaching the experimental group students with a strategy according to the theory of multiple intelligences.

The theory of multiple intelligences

(Abdullah, 2016): The individual's ability to solve the obstacles and problems facing him, or it is the individual's ability to produce something (Abdullah, 2016: 444).

procedural definition

A set of regular steps and procedures that the researcher adopts during teaching, taking into account the nature of the subject and the patterns of intelligence of the students, and it is measured by the degree that the student obtains after answering the paragraphs of the achievement test for the research topics.

Fourth / academic achievement

(Abu Jadu, 2000): It is the outcome of what the student learns after a period of time and can be measured by the degree that the student obtains in the achievement test, in order to know the extent of the success of the strategy that the teacher sets and plans to achieve his goals and the knowledge that the student attains that translates into grades (Abu Jadu, 2000): , 2000: 469).

Fifthly, intelligent thinking

(Ades, 2000): It is skillful thinking that is characterized by its ability to use clear and specific concepts and terms and has evidence of the correctness of its ideas and conclusions.

(Adass, 94:2000).

Procedural definition: The student's ability to answer the questions is measured by the score after answering the questions of the skill test prepared by the researcher, which consists of ten patterns, and each pattern has four questions. The degree obtained by each student in the two research groups (experimental and control) represents their level of skillful thinking. .

Theoretical framework

The concept of the theory of multiple intelligences: Psychologist Howard Gardner developed the theory of multiple intelligences that enables teachers to find teaching methods that help learners master the subjects, and create an exciting classroom environment that includes activities and assessment tools that respond to eight types of intelligence: linguistic intelligence, logical-mathematical intelligence Spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, interpersonal social intelligence, implicit interpersonal intelligence, natural intelligence. (Izz al-Din and al-Uwaidi, 110: 2006)

Second: Multiple Intelligences Types

❖ Linguistic/ Verbal Intelligence

There are areas in the brain responsible for linguistic intelligence, such as Broca's area, which is responsible for producing the grammatical structure

of the language, i.e. forming sentences and installing them in a proper manner. The disease “Aphasia” results in the verbal aphasia in which it is difficult for the individual to construct simple sentences. The second area is the Franc area responsible About understanding audible speech despite the ability to speak.

- ❖ Logical/ Mathematical intelligence
This intelligence is the basis of the natural sciences and all kinds of mathematics. People who use mathematical-logical intelligence tend to emphasize rational matters (Silver, 2006:8-7).
- ❖ Spatial / Visual Intelligence
The individual's ability to visually visualize and geographical representation of ideas, perceive visual and spatial information, think about the movement of things, see the universe accurately, and perceive internal mental images or fantasies, as well as sensitivity to colors, shapes and lines, and the relationships between those elements.
- ❖ Musical Intelligence
Gardner points out that every natural individual possesses musical intelligence, and points to the importance of its development in early childhood, when children are more skilled in performance.
- ❖ Bodily/ Kinesthetic Intelligence
The owner of this intelligence is characterized by the ability to acquire knowledge in the light of physical sensation, performs movements well and well, and is able to imitate and simulate any behavior, and it appears clearly in actors, dancers, surgeons, athletes, mechanics, carpenters and blacksmiths (Ibrahim, 66: 2011).
- ❖ Interpersonal Intelligence
A person who possesses social intelligence that is not learned security through interaction with others, and is characterized by having skills in solving problems between individuals, and it appears clearly in teachers, educational counselors, doctors, politicians and clerics (Ibrahim, 2011:67)
- ❖ Intrapersonal Intelligence
People with this type of intelligence are distinguished by their ability to access their own feelings and emotional or emotional states, and those with this intelligence usually choose to work alone, and use their understanding and confidence in themselves as a guide for them in their actions, and they can set realistic goals and perceptions for themselves (Silver, 2006:9).
- ❖ Natural Intelligence
It is the environmental intelligence that appears in the light of recognition, discrimination and classification into nature (Ibrahim, 68: 2011)

Third: The basic principles of the theory of multiple intelligences

The theory of multiple intelligences includes several basic principles, the most important of which are:

- 1) People have all multiple intelligences The theory of multiple intelligences asserts that each person has energies from all eight of the intelligences, and of course they work together in ways that are unique to each person. Some people appear to have very high levels of performance in all or most of the

eight intelligences, and most people fall somewhere between these two poles - highly developed in some intelligences, modestly developed in others, and relatively underdeveloped in others (Armstrong, 2006:11).

- 2) Most people can develop each of the intelligences to an appropriate level of competence, and each person should be given the opportunity to be able to identify and develop his multiple intelligence, and the use of one type of intelligence can contribute to the development and development of another type of multiple intelligence (Al-Madhoun, 17). :2018)
- 3) The presence of other intelligences
Gardner points out that his model is only a provisional formula; If further research and investigations are conducted, it may be found that some of the intelligences mentioned in his list may not meet some of the eight criteria mentioned above, and therefore they are not qualified; Because they are called intelligences. On the other hand, we may find new intelligences that meet the tests of their diversity. Indeed, Gardner acted according to this belief when he added a new intelligence, the natural intelligence. (Armstrong, 2006-11 12)

Fourth: The educational importance of the theory of multiple intelligences

- Multiple intelligences theory centers around the content of learning and the relationship between learning and eight distinct fields of knowledge or topics. Teachers must address differences in ways that are appropriate, practical, and easy to implement. (Silver, 52:2006)
- This theory is one of the important theories and has spread widely in educational circles since its appearance in a way that Gardner himself did not expect, who indicated in a speech he gave in Spain while receiving an honorary doctorate from a university that the spread of his theory in the United States and from there to the rest of the world; His push to publish a book jointly with 42 researchers and scholars; To clarify the ways of using multiple intelligences at different ages and in different educational environments (Gardner, 2011: 5)
- The theory of multiple intelligences is a cognitive model that attempts to describe how individuals use their multiple intelligences to solve a problem. This theory focuses on the processes that the mind follows in dealing with the content of the situation to reach the solution.
- Helping the teacher to expand the circle of his teaching strategies, to reach the largest number of students of different intelligence and learning styles. (Abu Ahmad,

Second axis Smart thinking

Thinking has aroused the interest of researchers, thinkers and philosophers throughout history, and all philosophical, educational, and psychological schools have been concerned with developing thinking in the student to become more able to face difficulties and problems, whether in academic fields, or various areas of life from social, economic, and educational aspects, and ethical, and others (Al-Atoum et al., 2009: 17). Skillful thinking is an evolutionary process with a sequence that ultimately leads to the production of ideas and problem solving,

and it also includes trends, tendencies and values, which lead the individual to different types of details, and therefore the individual is selective in his actions based on his tendencies and tendencies (Costa and Kallick, 2000: 12).

Characteristics of a clever thinker

Some studies have confirmed that a person who is clever in a certain field, such as a writer, is not necessarily clever in other fields. The clever, or the expert, is in one field rather than another (Al-Shammari, 35: 2018). Alwan (2006) pointed out that clever (intelligent) people become aware of their thinking through a comprehensive review of the whole process, and are also skilled in using metacognitive skills, and that clever people interpret and synthesize a problem more effectively; Because they come with a base of up-to-date information (Alwan, 2006: 2)

Smart Thinking Tools

1. **Imagining:** Perception means a picture of the material things that are imprinted and recorded in the memory of the individual, as each sensory image is a huge number of elements that exist in a limited relationship of similarity and consistency, it is one of the thinking tools that the individual intends to use in generating imaginary images that symbolize to specific topics.
2. **Concepts :**Concepts mean a knowledge base that exists in the form of a plan that works to direct behavior towards a pattern of classification based on placing individuals, things, or subjects into categories based on the common characteristics between them, and accordingly the concepts contribute to the individual's acquisition of the process of understanding what is happening around him (Al-Afwan et al. , 2012:204-205).
3. **Symbols and signs :**It means everything that replaces, replaces or indicates something, and images and shapes are all symbols that often express meanings and concepts (Mahmoud, 2006: 71)
 - ❖ **Language :**Language is one of the most adequate means of implementing the thinking process. It is a system of symbols and rules that allow an individual to communicate with others.
 - ❖ **Muscle activities :**In many cases, thinking leads to the movement of a group of muscles in the body, and studies have indicated that there is a strong relationship between thinking and the muscular activities of the person who thinks, as the more he immerses himself in thinking, the more muscle contractions and vice versa. (Nawfal and Al-Rimawi, 2008: 28).
 - ❖ **Brain Functions :**Brain theories in general, and hemispheric theory in particular, have provided researchers with the functions of the left and right sides of the brain (Al-Afon and Abdel-Sahib, 2012: 206).

The relationship of clever thinking to a problem-solving style

In daily life, the individual faces many problems that differ in their simplicity and complexity from one individual to another, and from one situation to another, which requires stimulating many of the individual's cognitive mental processes

that he acquired as a result of experience (Ghanim, 2004: 252) The problem-solving method gives the knowledge that is gained from experience and stimulates problem-solving skills, which are among the high skills that help in organizing the knowledge base of the individual (Al-Afoun and Abdel-Sahib, 2012: 46)

Previous studies

- Hussein's study (2008): This study was conducted in the Kingdom of Saudi Arabia, and aimed to know the effectiveness of using a science education program using the activities of multiple intelligences in developing problem-solving skills, and some basic science operations for second-grade students, and the study sample consisted of (66) students. The (semi-experimental) approach was used, based on the two groups (experimental and control), and the proposed program was built to include teaching strategies that fit the activities of multiple intelligences. It was prepared by the researcher, and the researcher used statistical treatments (arithmetic mean, standard deviation, (T-test), and the results of the study concluded that the program based on multiple intelligences had a significant impact on the development of both achievement and problem-solving skills and basic science processes among the students of the group Experimental (Hussain, 2008: 41-80).
- Al-Saffar Study (2008) The study was conducted in Iraq / University of Baghdad and Al-Mustansiriya, the study aimed to identify the level of smart thinking and its relationship to cognitive preference and the ability to solve problems among university students, and to find out if there are statistically significant differences in smart thinking according to the variables of gender and specialization, the sample consisted of (405) male and female students They were randomly selected from the University of Baghdad and Al-Mustansiriya, and they depended on the (Al-Kubaisi 1989) scale for solving problems, the skill scale and the cognitive preference prepared by the researcher. The results also showed that there are no differences in smart thinking according to gender and specialization (Al-Saffar, 2008).

Method and procedure

First: Experimental design: It is a blueprint and work program on how to implement the experiment, i.e. planning the factors and circumstances surrounding the studied phenomenon in a specific way and observing the changes. : 487). The researcher relied on the experimental design with partial control in two groups (an experimental taught in the strategy of multiple intelligences and a control one taught in the usual way (and the following table illustrates this).

Table No. (1) The experimental design of the research

post test	Dependent variable	Independent variable	Group
Achievement test+ smart thinking test	Achievement And the smart thinking	Teaching strategy based on the theory of multiple intelligences	Experimental
		Usual method	Control

Second: The research community and its sample

The research community consisted of second-grade intermediate students in the General Directorate of Education for Nineveh, from which (Petra Intermediate School for Girls) was randomly selected, from which Division (B) was chosen to represent the experimental group and Division (A) to represent the control group, and the two research groups included (65) students distributed equally. Accordingly, (3) were statistically excluded from the two research groups, and thus the number of individuals in the research sample became (62) female students, and the following table illustrates this:

Table (2) The female students of the research sample before and after exclusion and their distribution to groups

The final number of students	The number of excluded students	The number of students before exclusion	Teaching method	Branch	Group
31	1	32	Multiple intelligences theory	B	Experimental
31	2	33	Usual method	A	Control
62	3	65	The total number of students		

Research results

"There is no statistically significant difference at the significance level of 0.05 between the average degrees of achievement of the experimental group students who study according to the strategy of multiple intelligences, and the students of the control group who study in the usual way.") (post-post) for the students of the experimental and control groups, then applied the t-test for two independent samples, and the results were included in Table (3) as shown below:

Table (3) Arithmetic mean, standard deviation, and the value of the (t.test) test for (achievement) for female students of the two groups (experimental and control) in the post test

Indication level	Freedom Degree	T value		Standard deviation	SMA	N.O students	Group
		Tabular	Calculated				
Significant	(60)	2,000	3,274	4,374	18,838	31	Control
				2,832	21,903	31	Experimental

❖ Significant at an error rate of (0,05) and at a degree of freedom (60) (T) tabular = (2,000)

It is clear from the above table that the calculated t-value is (3,274), which is greater than the tabular t-value of (2,000) at the level of significance (0.05) and the degree of freedom (60), which indicates the existence of a statistically

significant difference in the post-achievement test for female students. The experimental group, the control group, and in favor of the experimental group.

Results related to the second null hypothesis

"There is no statistically significant difference at the significance level of 0.05 between the mean of clever thinking among the experimental group students who study according to the strategy of multiple intelligences, and the control group students who study in the usual way." And To verify this hypothesis, the researcher extracted the arithmetic mean and standard deviation of the (smart thinking) test (post-post) among the students of the experimental and control groups, and then applied the t-test for two independent samples. The results were included in Table (4) as shown below:

Table (4) The arithmetic mean, standard deviation, and the value of the (t.test) test for the (smart thinking) of the female students of the two groups (experimental and control) in the post test

Indication Level	Freedom Degree	T value		Standard deviation	SMA	N.O students	Group
		Tabular	Calculated				
Significant	(60)	2.000	2.373	16.831	169.023	31	Control
				17.002	179.218	31	Experimental

❖ Significant at an error rate of (0.05) and at a degree of freedom of (60) (T) tabular = (2.00)

It is clear from the above table that the calculated t-value is (2.373), which is greater than the tabulated t-value of (2,000) at the level of significance (0.05) and the degree of freedom (60).

Conclusions

In light of the research results, the researcher concluded the following:

- 1) The level of achievement of female students who studied according to the strategy of multiple intelligences was higher than the level of achievement of female students who studied in the usual way.
- 2) The level of skillful thinking among the students who studied according to the strategy of multiple intelligences, was higher than the level of the students who studied in the usual way.

Recommendations

- 1) Establishing educational centers to develop the types of intelligences, the aim of which is to train teachers on how to develop multiple intelligences among their students, and train them on enrichment activities and how to provide the necessary supplies during the lesson.
- 2) Organizing courses and workshops for male and female teachers to help develop their linguistic, environmental and visual capabilities, so as to facilitate the change in the classroom from linguistic presentation to the use

of shapes, images and videos, which makes the lesson a synthesis of multiple intelligences.

Suggestions

To complement the current research, the researcher suggests the following:

- 1) Teaching according to the types of intelligence of students and its impact on academic achievement.
- 2) Building a training program for teachers according to the theory of multiple intelligences.

References

1. Abd al-Rahman, Anwar Hussein, and Zangana, Adnan Haqqi (2007), methodological patterns and their applications in the humanities and applied sciences, Dar Al-Nahda, Baghdad
2. Abdullah, Ahmed Mohamed (2016), The effect of using some teaching strategies based on the theory of multiple intelligences in developing some reflective thinking skills among middle school students, Journal of the College of Education _ Port Said University, No. (20), 437_471.
3. Abu Jadu, Saleh Muhammad Ali (2000), Educational Psychology, 2nd Edition, Dar Al Masirah, Amman.
4. Adas, Mohamed Abdel Rahim (2000). The School and Teaching Thinking. Al-Fikr Publishing House. Amman.
5. Al-Afoun, Nadia Hussein, and Abdel-Saheb, Muntaha Mutashar (2012), Thinking: its patterns, theories, and methods of teaching and learning, i 1, Dar Safaa for Publishing and Distribution, Amman, Jordan.
6. Al-Atoum, Adnan Youssef, Al-Jarrah, Abdel Nasser Diab, Bishara, Mowafak (2009), developing thinking skills, theoretical models and scientific applications, 2nd floor, Dar Al-Masira, Amman, Jordan.
7. Al-Madhoun, Enas Iyad Mustafa (2018). Indicators of multiple intelligences included in the activities and exercises of the Islamic Education Book for the ninth grade and the extent to which students acquire them (published master's thesis). The Islamic University, Gaza.
8. Al-Shammari, Rania Khaled Hassan (2018), the relationship of creative motivation to clever thinking (unpublished master's thesis), College of Education, Al-Mustansiriya University, Iraq.
9. Alwan, Amer Ibrahim (2006), Mind Development, Al-Binaa Magazine, No. 5. (2012), Educating the human brain and teaching thinking, Dar Safaa, Jordan.
10. Amer, Tariq Abdel-Raouf and Muhammad, Rabie (2008), Multiple Intelligences, 2nd floor, Dar Al-Yazuri, Amman
11. Armstrong, Thomas (2006). Multiple Intelligences in the Classroom. 1st Edition. Translation of Dhahran National Schools. Dar Al-Kitab Al-Edabi for Publishing and Distribution, Kingdom of Saudi Arabia.
12. Aziz, Awan Kazem (2005). Critical thinking and its relationship to some personality traits among secondary school teachers (unpublished master's thesis), College of Education, Tikrit University.

13. Costa, & Kallick .(2000). *Discovering and Exploring Habits of mind*, ASCD .Alexandria Victoria. USA.
14. Deing,. (2004). Multiple intelligences and learning style: Two complementary dimensions , *teachers college Record*106 (1), 96-111 .
15. Dunkin, E.(1987). *International Encyclopedia Teaching and Teacher Education* ,New York ,Pergamum press.
16. Ezzedine, Sawsan and Al-Owaidi, Wafaa (2006), Learning styles of female students of the College of Education for Girls according to the theory of multiple intelligences in the Kingdom of Saudi Arabia, *Jeddah Governorate, Reading and Knowledge Magazine*, (56), 102-135.
17. Gardner, Hillary (2011). Promoting Learner Engagement Using Multiple Intelligences and Choice-Based Instruction Adult, *Basic Education & Literacy Journal*. Vol. 5 Issue2, p97-101.5p.
18. Gardner, Howard (2004): *Frames of Mind Theory of Multiple Intelligences* (Translated by: Muhammad Al-Jayousi). Arab Bureau of Education for the Gulf States, Riyadh.
19. Gardner, Howard. (1999). *Intelligence Reframed, Multiple Intelligences For The 21st Century*. New York; Basic books
20. Ghanem, Mahmoud Muhammad (2004), *Thinking in Children*, Dar Al Thaqafa Library for Publishing and Distribution, Amman
21. Hamidi, Qassem Abdel Amir (2012). The effect of teaching strategies according to the theory of multiple intelligences in developing the written expression skills of fourth-grade literary students (unpublished master's thesis). College of Education. Al-Mustansiriya University.
22. Ibrahim, Nabil Rafiq Muhammad (2011). *Multiple intelligence. i 1*. Dar Safaa for Publishing and Distribution. Amman.
23. Jarwan, Fathi Abdel Rahman (1999), *Learning to Think, Concepts and Applications*, Dar Al-Fikr, Jordan.
24. Mahmoud, Salah El-Din Arafa (2006), *Thinking Without Boundaries, Contemporary Educational Visions in Teaching and Learning Thinking*, 1st Edition, Dar Alam Al-Kutub for Publishing and Printing, Cairo
25. Nofal, Muhammad Bakr and Al-Rimawi, Muhammad Odeh (2008). *Practical applications in developing thinking using habits of mind*. Dar Al Masirah for Publishing and Distribution. Amman
26. Samara, Nawaf Ahmed and Al-Adely, Abdul Salam Musa (2008), *Concepts and Terminology in Educational Sciences*, Dar Al-Masira, Amman.
27. Sliver, Harvey, Strong, Richard, Matthew, Brenny (2006). *In order for everyone to learn to integrate learning methods with multiple intelligences. I 2*. Translation of Dhahran Private Schools. Educational Book House for Publishing and Distribution. Dammam
28. Sukmana, M. E., Kristiyanto, A., & Liskustyawati, H. (2021). The relationship between emotional intelligence and hardiness on stress resistance in athletes with disabilities in Indonesian national Paralympic committee . *International Journal of Health & Medical Sciences*, 4(1), 23-37. <https://doi.org/10.31295/ijhms.v4n1.450>
29. Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2021). Health and treatment of diabetes mellitus. *International Journal of Health Sciences*, 5(1), i-v. <https://doi.org/10.53730/ijhs.v5n1.2864>
30. *The trick*, Muhammad Mahmoud (2008), *Education Design Theory and Practice*, 4th edition, Dar Al Masirah, Amman.

31. Wilson, Jeni; Jan, L., Wing,(2009). Smart Thinking A program me for Developing Thinking Skills in 7 to 12 year olds, United States of America & Canada, 1st Edition, Published by Curriculum Corporation Anderson, V, (1998). Using Multiple intelligence to improve
32. Yamin, Warda Abdel Qader Yahya (2013), Patterns of Mathematical Thinking and its Relationship to Multiple Intelligences and the Desire for Specialization and Achievement among Tenth Grade Students in Palestine, (Master's thesis published), An-Najah National University, Nablus, Palestine.