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# The effectiveness of the Mastery Learning Strategy (M.L.T) in the achievement of students of the Faculty of Education and the development of smart thinking and academic self-motivation

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**Abstract:**

This research to identify (the effectiveness of the Mastery Learning Strategy (M.L.T)in the achievement of students of the Faculty of Education and the development of smart thinking and academic self-motivation). The researcher used the partially controlled experimental design of the experimental and control groups and identified the research community with the students of the third stage in the Department of Quran Sciences and Islamic Education - Faculty of Education - Morning Study for the academic year ( 2018 -201 9 ), which numbered (92) students divided into three divisions. Two divisions were randomly selected, Division ( A ) representing the experimental group and Division ( B) representing the control group, and their number in each group was (30) students. The two groups were rewarded in the following variables ( chronological age - intelligence - previous knowledge - deft thinking - academic self-motivation). He prepared the necessary research requirements represented by the scientific material andits topics, behavioral objectives and teaching plans for each group . The research was conducted, the first (the achievement test), the second tool (the dexterity scale) and the third tool (the self-academic motivation scale) and finding the psychometric properties of them. It applied the tools andstudied the experimental group according to the Mastery Learning Strategy (M.L.T) and the control group according to the usual method and then processed the data statistically using the Statistical Portfolio for Social Sciences (SPSS). The research found that (the experimental group that studied according to the effectiveness of the Mastery Learning Strategy ( M.L.T) outperformed the students of the control group that studied according to the usual method of achievement, smart thinking and academic self-motivation. The recommendations are as follows: Adopting the effectiveness of the Mastery Learning Strategy (M.L.T) for the subject of curricula and teaching methods to be taught in the Faculty of Education andurging teachers to diversify in the use of modern teaching strategies. andfamiliarize students with how they think

At the end of the current research, the researcher included some suggestions, including studying the effectiveness of the Mastery Learning Strategy (M.L.T) in other variables such as future thinking and systemic thinking skills.

**Keywords :** (Mastery Learning Strategy (M.L.T) , Achievement , Smart thinking , Academic self-motivation)

## استراتيجية اتقان التعلم (M.L.T) في تحصيل طلاب كلية التربية وتنمية التفكير الذكي والدافعية الذاتية الأكاديمية

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خلاصة:
هدف هذا البحث إلى التعرف على (فاعلية استراتيجية إتقان التعلم (MLT) في تحصيل طلاب كلية التربية وتنمية التفكير الذكي والدافعية الذاتية الأكاديمية). استخدمت الباحثة التصميم التجريبي المنضبط جزئياً للمجموعتين التجريبية والضابطة وحدد مجتمع البحث مع طلاب المرحلة الثالثة في قسم علوم القرآن والتربية الإسلامية – كلية التربية – الدراسة الصباحية للعام الدراسي (2018 -201). 9) والتي بلغ عددها (92) طالباً مقسمين إلى ثلاث شعب. تم اختيار شعبتين عشوائياً، الشعبة (أ) تمثل المجموعة التجريبية والشعبة (ب) تمثل المجموعة الضابطة، وكان عددهم في كل مجموعة (30) طالباً. تمت مكافأة المجموعتين في المتغيرات التالية (العمر الزمني – الذكاء – المعرفة السابقة – التفكير الذكي – الدافع الذاتي الأكاديمي). وقام بإعداد متطلبات البحث اللازمة المتمثلة في المادة العلمية وموضوعاتها والأهداف السلوكية والخطط التدريسية لكل مجموعة. وقد أجرى البحث الأداة الأولى (الاختبار التحصيلي) والأداة الثانية (مقياس البراعة) والأداة الثالثة (مقياس الدافعية الذاتية الأكاديمية) وإيجاد الخصائص السيكومترية لها. وتم تطبيق الأدوات ودراسة المجموعة التجريبية وفق استراتيجية التعلم الإتقان (MLT) والمجموعة الضابطة وفق الطريقة الاعتيادية ومن ثم معالجة البيانات إحصائياً باستخدام المحفظة الإحصائية للعلوم الاجتماعية .(SPSS) وتوصل البحث إلى أن (المجموعة التجريبية التي درست على وفق فاعلية استراتيجية التعلم الإتقاني (MLT) تفوقت على طلاب المجموعة الضابطة التي درست على وفق الطريقة الاعتيادية في التحصيل والتفكير الذكي والتحفيز الذاتي الأكاديمي. أما التوصيات فهي كما يلي: اعتماد فاعلية استراتيجية إتقان التعلم (M.L.T) لمادة المناهج وطرق التدريس المقرر تدريسها في كلية التربية وحث المعلمين على التنويع في استخدام استراتيجيات التدريس الحديثة وتعريف الطلاب بكيفية تفكيرهم وفي نهاية البحث الحالي قدمت الباحثة بعض المقترحات منها دراسة مدى فاعلية استراتيجية تعلم الإتقان (MLT) في متغيرات أخرى مثل التفكير المستقبلي ومهارات التفكير المنظومي.

**الكلمات المفتاحية** : (استراتيجية تعلم الإتقان (M.L.T) ، الإنجاز ، التفكير الذكي ، التحفيز الذاتي الأكاديمي

**First: Problem of the Research**

We know that societies are constantly renewed in all fields as a result of the changes that have occurred thanks to the world of information technology to develop the thinking abilities of individuals , and that educational institutions have a prominent role in building and developing the personality of the individual, as they make the learner think effectively with information and face many problems in his life and solve them needs the ability to think skillfully and in a smart way to provide multiple solutions.The curriculum and teaching methods are subjects that students may have difficulty understanding and absorbing if they are taught in traditional ways. Therefore, there is an urgent need to use modern teaching strategies that raise the achievement level of students, and this is indicated by several studies, including (Al-Aboudi , 2013 and Al-Saadi, 2013). The results of these studies show the poor achievement of students in educational subjects.(Al-Saadi, 2015: 23) . The problem of low motivation is also one of the educational problems facing theorists and educational scholars concerned with learning issues, which does not require attention to this issue. Therefore, educators have paid increasing attention to learning processes, motivation and the quality of education , as attention to motivation, learning processes themselves and the characteristics of learners has become one of the most important priorities in the learning process (Al-Alwan and Al-Attiyah, 2010: 684-685). Learning to think smart provides the individual with the tools he needs in order to be able to deal effectively with any

type of information or variables that develop his readiness to be able to deal effectively with complex life problems. Researcher Perkins likens it to "the ability to climb mountains or run certain distances." (Perkins, 1985: 55 ) .Through the researcher's work as a teacher for several years, she noticed that there is a weakness among students in the achievement and thinking process. Interviews were conducted with the subject teachers and they submitted an open survey questionnaire that includes some questions about the difficulties they face in teaching, and the method of teaching used. Do students have good thinking skills and academic self-motivation? Itfound that 85% use traditional teaching methods in teaching this subject and lack of knowledge of smart thinking and its skills . Accordingly, what prompted Alba Hatha to conduct this research in order to investigate the effectiveness of the strategy. The problem of the current research was formulated with the following question: **What is** the **effectiveness of the Mastery Learning Strategy (M.L.T) in the achievement of students of the Faculty of Education and the development of smart thinking and self-motivation ?**

**Second: Significance of the Research**

The third stage in the Faculty of Education is of significance and an important role in equipping students with skills to become, after graduating from the Faculty of Education, a successful teacher with cognitive and scientific competence in the future. Andthat one of the most important objectives of any educational system is to achieve integration, inclusiveness and coordination between the various aspects of the growth of students , so that the educational curricula must keep pace with scientific and technological development, social changes, the requirements of the times and the needs of the learner. Therefore, it is necessary to absorb these changes and achieve what is hoped for by improving, developing and changing them (Al-Khayyat,2003: 2); Therefore, renewal in teaching strategies has become an important necessity at the present time, and among those modern strategies has emerged a Mastery Learning Strategy (M.L.T), which adopts each of the modern educational philosophy (Al-Ahmad, 2010:55).

The researcher believes that it is necessary to teach students skillful thinking skills because it leads to a deeper understanding of the knowledge content they are learning , and that employing it transforms the process of acquiring knowledge from an idle process to an effective mental activity leading to better mastery of the content . Motivation is an important factor that interacts with the student's abilities to affect the performance behavior shown by the student in theclassroom environment , and it represents the force that moves and excites the student , his effort and perseverance andhis continuation in practical performance ( Al-Azirjawi, 1991: 45). The study of self-motivation among student learners helps us understand and interpret their performance in different learning situations and helps the student organize and guide his students in order to achieve the maximum benefit from the educational process (Al-Alawan and Al-Attiyah,2010: 69). Several academic studies andresearch have shown that the more diverse the cognitive stimuli, the greater the self-academic motivation(Abboud,2002: 163). Students' achievement

can also be predicted by their knowledge of their internal ( subjective) motives. ( Al-Atoum et al ., 2005 )

**Based on what has been presented, the significance of the research can be summarized as follows :**

1- Lack of research that dealt with the Mastery Learning Strategy (M.L.T) in teaching the subject of curricula and teaching methods in the variables of smart thinking and self-academic motivation to the best of the researcher's knowledge

**2-** This study benefits the developers of curricula and teaching methods because of the significance of the course .

3- This research is a " modest" contribution at the level of university learning due to the significance of this stage in shaping the future of society and provided with creative cards because the students of the Faculty of Education represent the teachers of the future .

4-For the subject of deft thinking and academic self-motivation, interest in it increased in the second half of the twentieth century.

**Research objectives**: The current research aims to identify :

1- The effectiveness of the Mastery Learning Strategy ( M.L.T) in the achievement of students of the Faculty of Education in the subject of curricula and teaching methods.

2- The Effectiveness of the Mastery Learning Strategy (M.L.T) in Developing Smart Thinking among Students of the Faculty of Education

3- The effectiveness of the Mastery Learning Strategy (M.L.T) in the development of academic self-motivation among students of the Faculty of Education.

**Research hypotheses**: To achieve the objectives of the research, the following null hypotheses were formulated:

1. There are no statistically significant differences at the level of 0.05 between the average scores of students in the experimental group who studied the subject according to the Mastery Learning Strategy (M.L.T) and the average scores of students in the control group who studied the same subject according to the usual method in the post achievement test)

2. There are no statistically significant differences at the level of 0.05 between the average scores of students in the experimental group who studied the subject according to the Mastery Learning Strategy (M.L.T) and the average scores of students in the control group who studied the same subject according to the usual method in the scale of smart thinking before and after)

3. There are no statistically significant differences at the level of 0.05 between the average scores of students in the experimental group who studied the subject according to the Mastery Learning Strategy (M.L.T) and the average scores of students in the control group who studied the same subject according to the usual method in the scale of academic self-motivation before and after) .

**Fifth : Research Limitation: Research Limitation of the**

| No. | Limitations | Details |
|---|---|---|
| 1 | SPATIAL | University of Kufa – Faculty of Education – Department of Holy Quran and Islamic Education |

| | | |
|---|---|---|
| 2 | Temporality | Semester for the academic year ( 2018 – 2019 ) |
| 3 | Mankind. | Students of the third stage of the Department of Quranic Sciences Islamic Education in the Faculty of Education |
| 4 | Objectivism | Curriculum Subjects and Teaching Methods |

**Sixth : Terminology : ( Defintion Of Rne The Tems )**

**1-Effectiveness : Defined by (Al-Khalifat 2010):** as: "The ability to achieve the objective and reach the results that have been previously determined" ( Al-Khalifat,13:2010).

- Procedural **definition:** The researcher defined it as the amount of positive change caused by the independent variable (Mastery Learning Strategy (M.L.T) ) to raise the level of achievement and develop smart thinking and Academic intrinsic motivation for students of the Faculty of Education, University of Kufa.

2- **M.L.T: Strategy Learning Mastery**

**- Definition ( Bloom, 1968 ) and(, 1981 Christine Nancy (Holden**:

As: ( An educational method to reach a high level in the process of learning the scientific material based on desire and practice and when teaching is organized , and in which students receive timely assistance with sufficient time for them and the clear standard of mastery ) .

(, 1981, p:62 Christine Nancy (Holde( Bloom , 1968 : p :16))

**- Procedural definition:** Defined by **the researcher as :** It is the arrival of all students of the experimental group or most of them to the level of mastery specified in advance after the completion of the study of the subject by dividing the educational content of the subject into small units specific objectives and provide structured teaching while giving sufficient time for learning to occur and providing assistance and treatment appropriate to the capabilities of students when needed.

**3- Achievement: Zaghloul ( 2003)** defined it as "the outcome of what the student learns after going through the educational experience to know the success of the strategy developed by the teacher to achieve his objectives and the student's knowledge" ( Zaghloul and Al-Mahamid, 2003: 87 )

**- Procedural definition of achievement :** The researcher defined it as the amount of grades obtained by third-year students in the Department of Quran Sciences and Islamic Education in the post-achievement test prepared by the researcher for the units of the subject of gloss and teaching methods using the Mastery Learning Strategy (M.L.T)

**4- Smart thinking: Define it (Al-Safa,2008):** It is the individual who has experience or skill in a field and who uses groups of intelligent behavior . (Al-Saffar, 2008: 21)

**Procedural definition**: The researcher defined it as a non-specific behavioral response that can be inferred from the total score obtained by the student by answering the items of the smart thinking scale prepared by the researcher for this purpose.

**5-Self-academicmotivation: academic self-motivation : Definedby both (Ryan & Deci , 2000) :** It is something that moves the learner's behavior towards a certain end. There are types of motives, including the motivation for knowledge, which is

the learner's performance of educational tasks in order to learn and discover new things. The motivation for achievement and the motivation for excitement is the learner's performance of educational tasks. The motive of conforming organization and the motive of integrated organization is the learner's performance of educational tasks to match the values and needs he carries . (Ryan. R. M. & Deci., 2000)

- The researcher adopted the theoretical definition of( Ryan & Deci , 2000 )

Procedural definition: The researcher defined it as : The total score obtained by the respondent ( students of the Faculty of Education ) by answering the items of the Self-Academic Motivation Scale in the current research

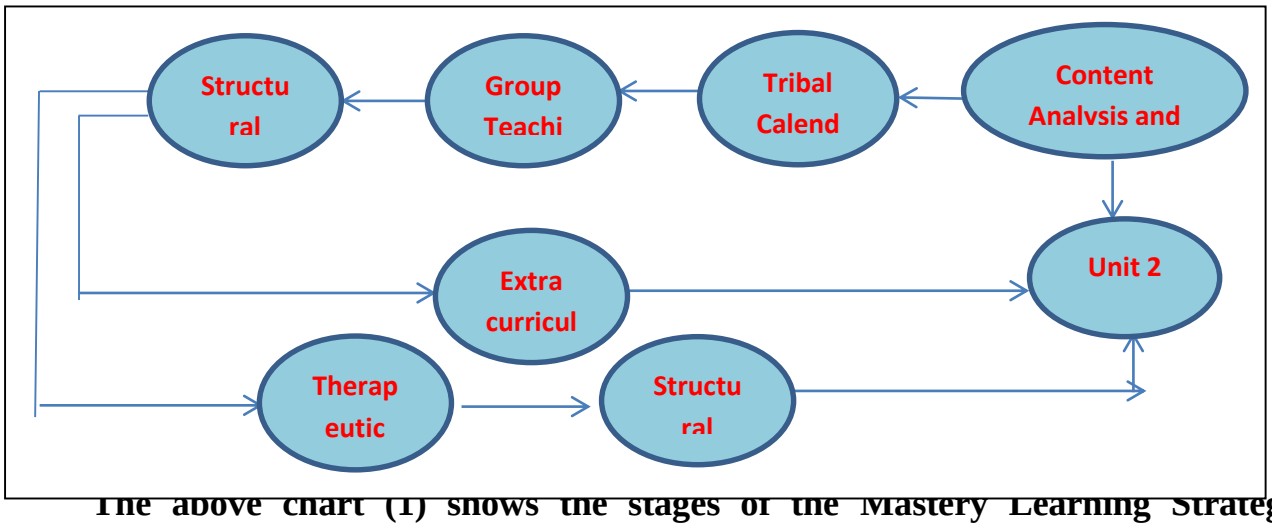
**Theoretical Background:**

**First : Mastery Learning Strategy (M.L.T):** It is one of the modern strategies that take into account the individual differences between students and depends on repeating the skill and correcting mistakes. During the practical steps of this strategy, the content is divided into small units with various behavioral objectives , models for final tests, and pre-evaluation, after which the subject is studied until absorbed by students (Denise , 1995:10 ).

**Stages of the Mastery Learning Strategy ( M.L.T): This strategy consists of three stages:**

- **Preparation stage**: The course is divided into small units and a number of evaluation tests are conducted in order to determine the level of each student before the beginning of the learning process.
- The **stage of implementing education :** Students are allowed to start learning each unit according to their speed and are not allowed to move to the next unit until after mastering the previous unit.
- **Evaluation phase**: At the end of each educational unit, a final evaluation is conducted to determine the extent of students' achievement. ( Al-Zaghloul and Al-Mahamid, 2007 : 23 ) , ( Daoud , 1991 : 164 – 165)

( Bloom , 1968 ) developed a blueprint for the Mastery Learning Strategy , then ( Blook , 1971 ) came and made improvements to it , and the following blueprint shows the stages, which is prepared by the researcher.




**The above chart (1) shows the stages of the Mastery Learning Strategy (prepared by the researcher )**

**Learning features of mastery :** Learning to mastery helps students in the process of how to retain what they have learned for a longer period and create a process of positive interaction between the teacher and the student, taking into account individual differences by providing appropriate conditions for learning to make students' attitudes more positive towards the subject and increase students' self-confidence and ability to learn . ( Joyes , 1986, p: 319)

**Second : Smart thinking :** It is like intermediate thinking processes (comparison, imagination , and inference) , and higher thinking processes (problem solving , decision-making, and metacognition ). Costa points out . The learning process initially needs a set of cognitive processes starting with the process of attention, knowledge, repetition, or practice. Al-Saffar , 2011 : 42 ) . Smart thinking calls for a commitment to the development of a number of mental strategies, and is based on the existence of pedagogical constants that should be emphasized and transformed into repetitive behavior and a consistent curriculum in the life of the learner . ( Nawfal and Al-Rimawi, 2008 , 66 )

**Components of Smart thinking :**

1-Determination, determination, perseverance,reducing tension and excitement, andcontrolling recklessness. ( Trad, 2012 : 235)

2-Listening to others and thinking flexibly (Thinking Fleixibility). (Novell , 2008 : 86 )

3- Thinking Interdependently. and Thinking About Thinking Metacognition. And Achieving accuracy and rightness or struggling for accuracy and finding humor.( Ibrahim et al., 2013: 315-319) (Adass, 2000 :77-78

6-Questioning and presenting problems and previous experience and applying them in a situation ( Ibrahim et al., 2013 : 313 )

7-Spirit of Adventure andUse all the senses .( Al-Saffar , 2011 : 68-69 )

8-Originality, clairvoyance or creation, innovation ( new ),curiosity and constant readiness for continuous learning.( Novell, 2008 : 88-90 )

**Third :Self-Academic Motivation**

The term motivation can be defined by presenting two main tracks:

**1- Motivation as understood. 2- Motivation as a hypothetical configuration**.

1-**Motivation( concept) :**It is a psychological concept, with controversial characteristics in psychology studies that carries meanings and facts that need to be distinguished and determined, including instinct, need, motivation, motivation, intention, will, and innate impulse. ( Al-Azirjawi, 1991: 46-47).

**2-** Motivation **(hypothetical formation) - its classification and excitement**: The study and knowledge of motivation is determined by two basic functions that are closely related to it:

**1-Activeor dynamic function. 2-Guidance or organizational function.**

In order to identify the role that motivation plays in the learning process and in learning situations, we can refer in this to the functions mentioned by Disco (1975): Deci and Ryan believe that academic self-motivation is a type of motivation in general, and represents an emotional motivation, aimed at achieving certain objectives in the individual learner, and that it is an acquired motivation from the envi-

ronment in which the learner lives and interacts with it . ( Deci and Ryan, 1987:1025) andthat self-motivation has two conditions that must be met: (Students must have high self-efficacy and have a sense of self-perseverance).Al-Atoum et al., 2008: 176-177).

Qatami and **Qatami (2000) have listed a number of personal and cognitive characteristics of students with self-academic motivation, including** the **following**:

1- His sources of reinforcement are internal andindependent of the environment and others.

2- Focuses on individual and self-learning,superior in achievement and more independent.

(Al-Alawan and Al-Atiyat, 2010: 690)

**People with high self-efficacy are the same characteristics as people with high academic self-motivation. These characteristics include:**

- They make a high effort to achieve objectives , have high ideas about their abilities, persevere and confiscate their internal objectives , and have a self-conviction of ability andtheir motivation to enhance their abilities in the face of difficult tasks.
- They benefit to a high degree from self-training situations and their thinking helps them to challenge their performance to meet high ambition and face obstacles and difficulties. (Katami, 2004: 187)

**Academic Intrinsic Motivation Theories:**

**I. Behavioral theories: Connectionism or Association Theories**

This theory sheds light on how the environment affects learners' motivation, and focuses on the use of external motivation or incentives.(Adass, 1998 : 351)

**Second: Cognitive Theories:** These theories believe that individuals do not respond to external or internal stimuli and incidents automatically. (Al-Zughoul, 2009: 166)

**Cognitive theories are:**

A- **Balance Theory** (1950)**: (Balance) Theory** Homeostatic**:** It assumes that the individual is motivated in his various claims in order to obtain cognitive balance and that the nature of motivation is an internal motivation (Intrinsic motivation) in which the individual seeks an answer to a puzzling question or a solution to an intractable problem or a discovery of something new (Goetz, 1992:559),Alexander and Ash)

B- **Cognitive dissonance theory** and the **tendency towards cognitive consistency** (1950)

**Cognitive dissonance Theory Cognitive consonance**

This theory confirmed that the motivation of individuals towards achieving cognitive balance or cognitive damage arises as a result of cognitive imbalance.Bani Younis, 2009: 113)

**III. Competence Theories**

These theories argue that internal factors that cause academic self-motivation, may be useful and important for learners.( Naama, 2010: 54)

**IV. Humanistic Theories**

These theories explain the motivation of behavior by linking it to personality studies, as they view man as an integrated whole (mind, body, spirit). (Al-Azirjawi, 1991: 56)

**V. Active stimulation theory:**

Excitement and direction are important aspects of motivation . (Adass, 1998 : 336, 352)

**Second – Previous studies:**

**A- Studies on** the **Mastery Learning Strategy ( M.L.T)**

**- A study (Martinez and Joseph , 1999 ) :** This study aimed to know the effectiveness of the distinctive use of the learning approach to mastery in the student community using the experimental approach, and withan experimental design of four groups, two experimental groups and two control groups . The study found that students who used learning to mastery distinguished themselves from the two control groups in achievement. (Martinez and Joseph , 1999 )

**B: Studies on Smart thinking**

1-Al-Ta 'ima **study (2010):** It aimed to identify "smart thinking and its relationship to the cognitive method (abstract – macroscopic ) among the students of the University of Baghdad. This study was conducted in Iraq. The research sample of (300) students was randomly selected from the research community of (42077) students. The research found that there are statistically significant differences for the benefit of students of scientific specialization in smart thinking . ( Al-Ta 'ima, 2010: i)

**C- Previous studies related to academic self-motivation :**

1- **Naama's study (2010) :** (Thinking styles and their relationship to academic self-motivation among university students).The sample(422) male and female students from the University of Baghdad were selected in the random stratified method. The study found that students of different sexes, specializations and grades have a high level of self-academic motivation, diligence, perseverance, high academic achievement, and a love of exploring and exploring new and unfamiliar information, experiences and things. Naama, 1:2010-100).

**Research Methodology and Procedures**

**First: - Experimental design:** The researcher chose the partially controlled experimental approach ( design of equivalent groups with pre and post-test as shown in Figure (1) below , as the experimental group studies using the Mastery Learning Strategy (M.L.T), while the control group studies in the traditional (usual) way as shown in Figure (1) below represents the experimental design of the research variables

| HSA Group | Equivalence of groups | Theindependent variable | The dependent variable | POST-TEST |
|---|---|---|---|---|
| Experimental group | A- Chronological age | Mastery Learning Strategy | Collection<br><br>Smart | Post Achievement Test |

| | | | | |
|---|---|---|---|---|
| | B-Intelligence<br>C- Previous knowledge<br>D-The Scale of Smart thinking (Pre-test)<br>E-Self-Academic Motivation Scale .(Pre-Test) | (M.L.T) | thinking<br><br>Academic self-motivation | Dimensional Dexterity Reasoning Scale<br>Dimensional Self-Academic Motivation Scale |
| Control group | | Traditional method | | |

**Second: The research community and its sample:** Thecommunity included the students of the Faculty of Education for the academic year (2018 -201 9). The students of the third stage in the Department of Quranic Sciences and Islamic Education at the University of Kufa were selected as a sample for the current research and intentionally by the researcher asa teacher in the department. A random sample was selected from the research community consisting of (92) students distributed over three divisions, and two divisions were selected in a random way to represent the experimental group ( A ), which is taught according to the Mastery Learning Strategy (M.L.T), and (B) represents the control group, which is studied in the usual way, and their number in each group was (30) students after excluding the failing students.As in Table No. (1)

**Table No. (1) Distribution of research sample students**

| Groups | People | Number of students after exclusion |
|---|---|---|
| Experimental group | B | 30 |
| Control group | A | 30 |
| Grand Total | A+B | 60 |

**Third: - Equivalence of the two research groups:** In order to ensure the internal integrity of the current research, the research groups were rewarded in : (chronological age, intelligence, previous knowledge in the subject of glory and teaching methods, the scale of smart thinking , and the scale of self-academic motivation), which are as follows :

**A- The chronological age of the students is calculated in months**: The ages of the two research groups were calculated using the T-test for two independent samples to find out the significance of the differences. It is not statistically significant at the level of ( 0.05 ), which means that the two groups are equal in the chronological age variable as in Table (2) below

**Table (2) The arithmetic mean, standard deviation and T-value of the scores of the two research groups in the chronological age**

| Groups | Number of indi-viduals | Arithme-tic Mean | Stand-ard De-viation | T Value | | Degree of free- | Signifi-cance 0,05 |
|---|---|---|---|---|---|---|---|
| | | | | Calculat-ed | tabu-lar | | |

| | | | | | | dom | |
|---|---|---|---|---|---|---|---|
| Experimental group | 30 | 223,83 | 15,692 | 1.575 | 2 | 58 | Not statistically significant |
| Control group | 30 | 219, 00 | 10.989 | | | | |

**B- Equivalence** of IQ **score:** The researcher used the test(Hunhmun - Nelson ) codified at the request of Iraqi universities and for all stages in order to suit the age group (the research sample) and it is of (100) items and for each item of the test (5) alternatives , and the highest score (100) and the lowest score (0) and after presenting the test to the competent arbitrators to show the validity of this test to assess the IQ of the students of the two research groups (control and experimental). The approval of the arbitrators obtained the validity of the test by 100% and when using the T-test for two independent samples to know the statistical differences,it turned out that the difference is not statistically significant at the level of (0.05). This indicates that the two research groups are statistically equivalent in the IQ test. Table (3) shows this.

**Table (3) shows the equivalence of the students of the two research groups in the intelligence test**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom | Significance |
|---|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | | |
| Experimental group | 30 | 49.645 | 5.850 | 1.776 | 2.00 | 58 | Significant |
| Control group | 30 | 51.519 | 4.506 | | | | |

**C- Previous knowledge in the subject** of **curricula and teaching methods:** An achievement test of a multiple choice type was prepared, and it consisted of (20) items . Each item was given a score of one correct and zero for the wrong or abandoned paragraph. Thus, the range of the score will be (0-20) and it was presented to a group of experts in the field of specialization , measurement and evaluation. The test was applied to the student of the two research groups. To find out the significance of the difference between these two averages, the T-test was used for two independent samples. It turned out that the difference is not statistically significant at the level of (05,0) and it turned out that the difference is not statistically significant at the level of (0.05). The result shows that two groups are statistically equivalent .

**Table (4) shows the equivalence of the students of the two research groups in the previous knowledge test**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom | Significance |
|---|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | | |
| Experi- | 30 | 17.154 | 7.534 | 0.659 | 2.00 | 58 | Signifi- |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **mental group** | | | | | | | **cant** |
| **Control group** | **30** | **16.045** | **6.167** | | | | |

**D-** The **scale** of **prior** smart thinking **:** Thescale was applied on the basis of the two research groups, and by using the t-test for two independent samples ( t-test) to find out the significance of the statistical differences, it was found that there are no statistically significant differences at the level of (**0.05**). This indicates the equivalence of the experimental and control research groups in the pre-test for smart thinking Table (5) below shows this.

**Table (5) The T-test for the difference between the mean scores of the two research groups in preliminarily smart thinking**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom | Significance |
|---|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | | |
| **Experimental group** | **30** | **20.483** | **4.984** | **0.982** | **2.00** | **58** | **Significant** |
| **Control group** | **30** | **21.223** | **6.781** | | | | |

**D- Tribal Self-Academic Motivation Scale:** Thescale was applied to the level of the two research groups to verify the equivalence of the two research groups, and after correcting and obtaining student scores and data analysis. When using the T-test for two independent samples ( t-test) to find out the significance of statistical differences, it was found that there were no statistically significant differences at the level of (**0.05**). This indicates the equivalence of the two research groups in the pre-test self-motivation

**Table (6) The T-test for the difference between the average scores of the two research groups in the pre-self academic motivation**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom | Significance |
|---|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | | |
| **Experimental group** | **30** | **25.893** | **7.122** | **0.646** | **2.00** | **58** | **Significant** |
| **Control group** | **30** | **24.778** | **5.904** | | | | |

**Adjusting variables :**

**A- External validity :** To achieve the external validity of the experimental design by doing the following:

1- The duration of the experiment is uniform and equal for both research groups ( experimental and control ).

2- Standardized measurement tools were used for both research groups.

**B- External validity control (control of extraneous variables) : These are:**

- Experimental extinction: The current research has not been subjected to such cases, whether leakage or interruption.
- Accompanying accidents: The researcheris keen that the circumstances and accidents do not affect the nature of the experience.
- Measurement tool: The researcher can use a tool to measure achievement, deft thinking and self-academic motivation among the students of the two research groups. It was characterized by objectivity, honesty and consistency .
- Sample selection: Controlling the differences in the selection of the sample because the conditions of the students are almost similar because they belong to one social environment.

**- The impact of the experimental procedures: This was represented in the following:**

-Ensuring the confidentiality of the experimentand teaching the two groups so that there is confidentiality of the experiment.
-Course: The same course was based on the two research groups
- Teaching Plans: The researcher prepared the necessary study plans to teach the subjects .
-Distribution of classes: Lectures are distributed equally between the two research groups in agreement with the department .
-Teaching: The researcher studied the same two research groups, foraccuracy and objectivity.
- College building: Application of the experiment in one place and has the same classroom environmental conditions

**Fourth: Research Requirements:**

a. **Determining the scientific material:** The researcher determined the scientific material to be studied according to the vocabulary of the specific material from the sectoral body , and the scientific material included ten chapters and as in Table (7) below

**Table No. (7) Items of material according to the sectoral authority**

| Chapter | Subject: |
|---|---|
| First Semester | Thebasic concepts in the curriculum (the meaning of the curriculum, the development of the curriculum , the factors of the development of the curriculum , the traditional and modern concept of the curriculum ) |
| Chapter 2 | Foundations of building the curriculum (philosophical basis, social basis, scientific basis) |
| Chapter 3 | Curriculum types (discrete subjects curriculum, interrelated subjects curriculum, activity curriculum) |
| Chapter 4 | Educational objectives (behavioral objectives , cognitive field, emotional field, skill field) |
| Chapter 5 | Study Content and Textbook |
| Chapter 6 | Educational technologies ( meaning of teaching aids, their significance , types ) |
| Chapter | Teaching methods (the meaning of the strategy , the meaning of the method , the meaning |

| | |
|---|---|
| 7 | of the method ) |
| Chapter 8 | Some teaching methods (lecture method, discussion , problem solving , exploration, brainstorming, learning modules) |
| Chapter 9 | Calendar ( Concept of Calendar , Function of Calendar , Types of Calendar ) |
| Chapter 10 | Planning in teaching (daily , monthly , annual plan) |

**B.Setting objectives and formulating them behaviorally:** (180) behavioral objectives were formulated in their initial form distributed over the six levels of Bloom's classification (remembering, understanding, applying, analyzing, composing, evaluating , and presenting them to a group of experts to verify their inclusion of the scientific material and the validity of the levels of the objectives within the six levels. The objective is valid if it obtains approval (80%).

**c. Preparation of study plans** : The researcher prepared daily teaching plansfor the subjects of the course.

**D.Preparing the specification table of the achievement test (test map):** Determine the relative significance of the topics in light of the number of behavioral objectives for each topic, and the number of test items is (50) items .

**Sixth – Preparing research tools:**

**A - Achievement test:** The researcher prepared an achievement test to measure the final achievement of students according to the vocabulary of the subject, which consists of (50) multiple-choice questions.

The researcher built an achievement test according to the following steps:

**1-Determining the purpose of the test:** Measuring students' achievement in the subject of curricula and teaching methods.

**2- Determining the number of test items :** The researcher used the opinions of specialists and a number of experts in the field of curricula and teaching methods, and it was agreed that the number of test items will be (50) .

**3-Preparing the specification table (test map)**:

**4- Drafting the items of the achievement test:** The items of the achievement test were drafted according to the specifications table, as the researcher prepared an objective test of the type of multiple-choice questions.

**5- Test instructions:** It ensures how to answer it as it is clear to students. The researcher also prepared the model answer for all the test items , as she was given one score for the correct answer and zero for the wrong answer,so the highest score for the test is (50) and the lowest score is ( 0).

**6- Validity of the test**: To verify the validity of the test, the researcher approved the following :

**A- Apparent honesty:** The researcher presented the test items with the content of the course and behavioral objectives to a number of specialized experts and modified their formulations in the axis of their opinions and suggestions .

| Table (7) shows the opinions of experts on the validity of the achievement test. | | | | | | |
|---|---|---|---|---|---|---|
| Item Numbers | Number of approvers | Number of Oppo-nents | Chi-square value | | Signifi-cance level (0,05) | Percent-age |
| | | | Calculat-ed | tabular | | |
| The items here are distributed accord-ing to their signifi-cance | 20 | 0 | 20 | 3,841 | Significant | 100% |
| | 17 | 3 | 9.8 | 3,841 | significant | 85% |
| | 16 | 4 | 7.2 | 3,841 | significant | %80 |

**B- The exploratory experiment of the test**:- The test was applied to a random exploratory sample of ( 25 ) male and female students for the purpose of determining the time of the test, to identify the validity of its items , conduct statistical analysis, extract discrimination and difficulty coefficients, and the effectiveness of the wrong alternatives. It was found that the time required to answer the test items is (45) minutes, and that all questions are distinctive and have an appropriate difficulty coefficient. The wrong alternatives were good and therefore the test was considered true (Validity)

**7- Test Items Analysis: The test items were analyzed as follows :**

A- Item **Difficulty Coefficient**: Using the formula of the difficulty coefficient for the objective items , the researcher found that the difficulty coefficients for the items range from (0.34– 0.69 ) , the tests are good if they vary in their level of difficulty between (20-80%). aggression ,2011: 120)

**B- Discrimination coefficient:** The scores of the students of the survey sample were arranged in descending order and the (27%) took a item and the coefficient of excellence ranges between (0.45-0.67) as the item is considered acceptable if the strength of its distinction is (20%) and above

**Table ( 8) below shows the statistical analysis (discrimination and difficulty ) of the achievement test**

| No. | Excellence | Difficulty |
|---|---|---|
| S1 | 0.5666 | 4657 |
| S2 | 0.4365 | 3356 |
| Q3 | 3624 | 2615 |
| Q4 | 5346 | 4337 |
| F5 | 0.4365 | 3356 |
| Q6 | 0.5846 | 0.4837 |
| F7 | 4735 | 3726 |
| F8 | 3994 | 2985 |
| F9 | 3624 | 2615 |
| Q10 | 0.4365 | 3356 |
| Q11 | 4743 | 3734 |

| No. | Excellence | Difficulty |
|---|---|---|
| Q16 | 0.4365 | 3356 |
| Q17 | 3624 | 2615 |
| Q18 | 2513 | 4504 |
| Q19 | 2883 | 2974 |
| F20 | 3624 | 2615 |
| F21 | 4235 | 3226 |
| Q22 | 4732 | 3723 |
| Q23 | 3833 | 2824 |
| Q24 | 5172 | 4163 |
| Q25 | 0.5576 | 4567 |
| Q26 | 0.4365 | 3356 |
| Q27 | 0.3224 | 2215 |
| Q28 | 4213 | $3,204 |
| Q29 | 3883 | 2874 |
| Q30 | 3664 | 2655 |
| Q12 | 4735 | 3726 |
| Q13 | 2883 | 3874 |
| Q14 | 5471 | 0.4462 |
| Q15 | 0.5576 | 4567 |

**C-** The **effectiveness of the wrong alternatives:** The equation was applied to the upper and lower groups and, it appeared that the alternatives attracted more students from the lower group than the upper group, so the effectiveness of the wrong alternatives was acceptable for all test items.

**8- Test reliability :** To know the reliability of the test, the following was used:

**First : Keoder Richardson 20:** The results of the second exploratory experiment were relied upon to extract the reliability of the scale if the reliability coefficient is reached in this way (0.816**).**

**Second – Half-split:** The value of the correlation coefficient appeared to be (0.761) and we use the Spearman-Brown equation to extract the test as a whole, as the val-

**Table (9) shows the validity of the arbitrators**

ues of the average correlation appeared to be (0.873)

**B- Smart thinking Scale**: After the researcher reviewed the literature related to the scale and obtained the English version of the sixteen ( 16) smart thinking scale prepared by ( Costa & Kallick , 2005), the researcher chose the behaviors that fit the nature of the research and their number was (10). The scale was translated into Arabic and then the Arabic version was retranslated into English again with the help of specialized experts in English .

**Psychometric Properties Of Scale:**

**- Validity**: The scale was verified by presenting it to a group of specialized experts in the field of education and psychology to ensure the validity , accuracy and validity of the items . The percentage of agreement is ( 82%) on its items , and this is a good indicator of the validity of the test

| Item Numbers | Number of approvers | Number of Opponents | Chi-square value | | Significance level (0,05) | Percentage |
|---|---|---|---|---|---|---|
| | | | Calculated | tabular | | |
| The items here are distributed according to their significance | 20 | 0 | 20 | 3,841 | significance | 100% |

**- Alternatives to the answer:** The Likert method was adopted in the preparation of alternatives

**The exploratory application of the smart thinking scale:** It was applied to a sample of ( 20) male and female students to calculate the appropriate time to answer and amounted to (42) minutes .

E- The **discriminatory power of the items of the scale :** I use the method of the two extremist groups, as (Ebel, 2009, Ebel ) indicates that the aim of this procedure is to maintain the distinctive items . (Ebel, 2009, .342 ) The total score for each form was calculated and the forms were arranged from the highest grade to the lowest grade, and (27%) of the forms with the highest grades in the scale and(27%)of the forms with the lowest grades were assigned.

(f) **Construction validity:** It was sensed using the total score of the scale. The use of the Pearson correlation coefficient to extract the correlation of the item to the total score and the correlation coefficients for all items are statistically significant at the level of ( 0,05).

**The reliability of the smart thinking scale:** The reliability of the test can be measured in several ways, including : the retest method, the equivalent image method, the half-split method, and the variance analysis method ( Abdul Hadi, 2002: 129 ), as follows:

1-**Reliability in the method of internal consistency:** The scale was applied to a survey sample and the internal consistency coefficient was extracted using the alpha-crew equation, as its value reached (0.852) and thus the scale is internally consistent, which shows the reliability of performance on all items of the scale(Allam, 2000, :166)

2-**Reliability using the half-split method**: The half-reliability coefficient was found and corrected using the Pearson correlation coefficient, and it was found that the correlation coefficient reached (0.71). Using the Spearman-Brown equation, the reliability coefficient reached (0.83), which is a good reliability coefficient.

**- Applying the scale :** Applied to thesample of (60) male and female students (30) students in the experimental group and(30 ) students in the control group

**C-Self-academic motivation scale:** In order to measure this variable, the researcher found that it is better to use the scale ( Al-Wazni,2011), which is relatively modern and prepared according to the Iraqi environment. The scale consisted of (39) items , and each item has two alternatives, one of which measures academic motivation and the other does not, and by five areas ( curiosity- achievement motivation

- level of ambition - challenge- independent competence). The researcher adopted the approval of (8) experts and more as a criterion for the validity of the field to measure what was set for it, which is equivalent to (80%), as he sees (Al-Zobaie et al., 1981). Determining the relative significance of each component of the scale helps the researcher to determine the number of items for each component, according to its weight in the scale (Al-Zobaie et al., 1981: 65).

- Psychometric characteristics of the scale: The researcher verified the following:

**A - The apparent** validity of the **scale Validity :** The scale with its components and items has been presented to a group of experts and specialists who confirmed the validity of its items to measure what was developed for its measurement. Table (10) below shows the opinions of experts for the Academic Motivation Scale.

The **exploratory sample of the scale:** To know the validity of the instructions and understand the phrases, and to know the time required to answer, the scale was applied to a survey sample consisting of (20) students randomly selected from college students. After completing the application, it was found that all items and instructions are clear. The response time of students on the scale ranged from (20-30) minutes and within a period of (25) minutes.

**Table (10) shows the opinions of experts for the Academic Motivation Scale**

| Item Numbers | Number of approvers | Number of Opponents | Chi-square value | | Significance level (0,05) | Percentage |
|---|---|---|---|---|---|---|
| | | | Calculated | tabular | | |
| The items here are distributed according to their significance | 20 | 0 | 20 | 3,841 | significance | 100% |

**-Reliability of the scale**: To achieve the reliability of the items of the scale, the researcher used the re-testing method for external consistency, and Cronbach-Alpha for internal consistency. The following is an explanation of this.

**- Retesting method**: The researcher applied the scale to a random stratified sample of (20) students, and after a period of (14) days on the first application, the scale was reapplied to the same sample and the correlation coefficient was extracted using the Pearson correlation coefficient (Person) between the students' scores on the two applications, which reached (0.88) degrees, and this is a good indicator of reliability , as the coefficient of reliability between the two applications if it is more than (0.70) is a good indicator (Issawi, 1985: 58) .

**- Crounbach Alpha Equation:** Calculate the correlations between the marks as if we divided the test not into two parts as in the half-partition method, but the test is divided into a number of parts equal to the number of items , that is, each item forms a subtest (Odeh, 2004 : 440). The reliability coefficient reached (0.88), which is a good and reliable reliability coefficient.

**Statistical means**: The researcher relied on the Statistical Portfolio for the Social Sciences ( SPSS).

**Implementation of the experiment** : After preparing the study requirements and preparing its tools , the researcher began the actual application of the experiment in the first semester on(1/10/2018) and ended on (27/12/2018 ).

**Presentation and interpretation of results: First: Presentation of results :**

1.Verification of the first null hypothesis: By comparing the results of the post-test of the two groups and using the T-Test for two independent samples to find out the significance of the differences between the two means, it was found that there are statistically significant differences at the level of significance ( 0.05 ) and in favor of the experimental group. Accordingly, the hypothesis was rejected and the alternative hypothesis was accepted, see Table (11) below .

**Table No. (11) : Achievement Test Results**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom |
|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | |
| Experimental group | 30 | 26.783 | 4.983 | 3.741 | 2 | 58 |
| Control group | 30 | 21.948 | 3.884 | | | |

2.Verification of the second null hypothesis: The T-test was used for two independent samples, so the calculated T-value was higher than the tabular value . Thus, the alternative hypothesis is accepted and in favor of the experimental group. Table(12) below shows the average scores of the experimental and control group members on the scale of deft thinking in pre and post measurement and in favor of the experimental group

**Table No. (11) : Results of the Pre and Post Thinking Scale**

| Groups | Number of individuals | Arithmetic Mean | Standard Deviation | T Value | | Degree of freedom | Significance |
|---|---|---|---|---|---|---|---|
| | | | | Calculated | tabular | | |
| Experimental group | 30 | 40.773 | 3.714 | 7.641 | 2.00 | 58 | Significant |
| Control group | 30 | 29.843 | 5.452 | | | | |

**3.**Verification of the **third null hypothesis: The** significance of the difference between the scores of the post-test and the pre-test of the subjective academic motivation of the experimental group was calculated using the T-test of two interrelated samples, which turned out to be significant at the level of significance ( 0.05) and the calculated T-value is greater than the tabular value, which indicated the development of the self-academic motivation scale of the experimental group. This result indicates that the college students are characterized by self-academic motivation .

**Table (13) below represents the arithmetic media, the standard deviation and the T-value of the sample members. Research on the Pre and Post Self-Academic Motivation Scale of the Experimental Group**

| HSA GROUP EXPER-IMENTAL GROUP | NU MBER | ARITH METIC AV-ER-AGE | DEVI-ATION, PER-VER-SION, VARI-ATION | VAR ANCE | DGR EE OF FREE DOM | T VALUE | | STA-TISTI-CAL SIGNIF-ICANC E AT THE LEVEL OF (0,05) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Cal-cu-lated | tab ula r | |
| Pre | 30 | 25.893 | 7.122 | 50.72 288 | 29 | 9.948 | 2.4 | Statisti-cally signifi-cant |
| Post | | 36.657 | 8.564 | 73.34 21 | | | | |

**Table (14) below represents** the **arithmetic media, standard deviation and T-value of the research sample individuals on the scale of academic self-**

| Con-trol grou p | Num ber | Arith-metic average | devia-tion, perver-sion, varia-tion | Vari-ance | De-gree of free-dom | T value | | Statisti-cal sig-nifi-cance at the level of (0,05) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Calcu-lated | tabu-lar | |
| Pre | 30 | 24.778 | 5.904 | 34.857 216 | 29 | 1.530 | 2.4 | Statisti-cally signifi-cant |
| Post | | 26.076 | 6.785 | 46.036 225 | | | | |

**motivation** before **and** after **the control group**

**Discussion**

1- Through the results of the research, it was found that the students of the experimental group outperformed the students of the control group in the achievement test and the scale of smart thinking and self-academic motivation. Theresults indicate that teaching using this strategy affects the development of the teaching process, which made the student's role more positive and interactive and commensurate with the information revolution in the world and thus increasing achievement. This strategy may be due to the fact that this strategy is an effective learning strategy that allowed students to understand the subject matter and interact with it with pleasure and suspense anddeveloped their mental abilities through the differ-

ent attitudes that they did during the teaching process and activating what is stored in their memory . In addition to theprofessor and his role in enriching the educational material with examples, there is a clear impact in their understanding of the scientific material and thus this is reflected positively in the impact of the variables related to the learning process andcontributed effectively to increasing achievement andthat nostrategy was characterized by its therapeutic methods, comprehensiveness and logical sequencing in the presentation of the academic material andits reliance on tests and various interactive activities commensurate with the material and the level of cognitive awareness of students.

**2- Interpreting the results related to the performance of the students of the two research groups in the Dexterity Thinking Scale.** The results of the research showed the superiority of the experimental group over the control group students in the smart thinking scale, due to the fact that the continuous and accurate provision of information facilitated the development of thinking among students and a participant in the classroom in presenting their ideas. This helped in developing smart thinking in particular and the researcher's interest in what students suffer from boredom and boredom through the use of regular methods in teaching , as well as his interest in their previous knowledge **and** taking them into account during the preparation of the learning strategy. The smart thinking scale is a new experience for students that led to their excitement to see its items and it led to the consolidation of items in the students' cognitive structure.

**3- As for** the interpretation of the **result** of **academic self-motivation, this is due to the fact that the motivation** for the study represents one of the important aspects in the frameworks of models and theories of motivation because it means the outcome of the interaction between the external forces represented in the expectations and attitudes of others, and the internal forces represented in needs, tendencies and desires, we find that students accept with all enthusiasm and activity, and make the utmost effort to obtain high grades in the study material, all of which would raise the level of learning motivation among the sample members, and that the students' access to this high level of academic motivation may reflect the effective role of the students themselves in acquiring knowledge, as well as the role of the strategy used in teaching and increasing the teacher's interest in creating and providing a psychological and material environment that helps to stimulate their academic motivation.

**Chapter 5: Conclusions and Recommendations**

**First : Conclusions : Through the results contained in the research, we conclude the following :**

1- The effectiveness of the learning strategy for mastering M.L.T in teaching, which led to raising the level of student achievement in the subject of curricula and teaching methods andin the development of smart thinking among students .

2- The strategy of mastering education and its therapeutic methods helped to diagnose the weaknesses of students, which generated the ability to think and develop their abilities at the level of analysis, criticism, interpretation, searching for

information and investigating it skillfully and raising the level of their academic self-motivation

**Second : Recommendations : In light of the results, the researcher recommends the following:**

1- Using the learning strategy to master M.L.T. in the teaching process in university institutions

2- Urging teachers in educational and university institutions not to be satisfied with one method, but the need for diversity in the use of modern teaching strategies and educational techniques that emphasize the positive role of the student in the learning process and the development of their thinking.

3-Providing teaching curricula and teaching methods with a guide indicating the significance and usefulness of the strategy of mastering education and its therapeutic methods and how to apply them in practice for the purpose of achieving the desired objectives .

4-Holding specialized training courses on effective learning strategies and methods .

5- Getting students used to how they think and learn more than they care about how much, which increases their motivation to learn.

**6-the nee**d to take into account the aspects of smart thinking when developing courses in a way that helps to develop dexterity when requested and to make smart thinking and the formation of a creative mindset a general educational objective in the various stages of education .

7- Drawing the attention of those in charge of the educational process to the need to know the level of self-academic motivation among students, and work to develop it .

**Third : Suggestions** :**To complete this research, the researcher proposes the following :**

1- Conducting a study similar to the current study in basic education colleges or teacher training institutes because it is appropriate for the level of maturity of students and for the various stages of schooling .

2- Conducting a study that reveals the effectiveness of the Mastery Learning Strategy M.L.T in other variables such as holistic thinking, retention, development of classroom teaching skills and orientation towards the subject.

3- Conducting a comparative study between the Mastery Learning Strategy M.L.T And other strategies in other variables such as mental motivation and the transfer of the impact of learning among students .

4-Adopting the Self-Academic Motivation Scale as a criterion for diagnosing students with low academic motivation.

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