The Study Of Thinking Methods In Light Of The Sternberg's Theory Among Students Of The Faculty Of Basic Education

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Abstract

The study of thinking methods has received great attention in educational and other societal institutions, which have become of utmost importance to developing the capabilities of members of society in their various locations in the field of thinking, in an era characterized by scientific wealth and modern technology, and this requires multiple thinking methods to confront and try to overcome them.

This study aimed to identify the prevailing thinking methods of students of the Faculty of Basic Education, Mustansiriyah University, and to study the differences in thinking methods in light of their academic specialization. The study population consisted of students of the Faculty of Education for the year 2020 - 2019, where the fourth stage was chosen, the Faculty of Basic Education, Mustansiriyah University, as a research community, and it reached (1426) male and female students with (644) males (782) females. By class selection, the research sample was determined consisting of (400) students of the fourth stage and for all departments except the two departments (kindergarten and the first grade teacher), where they were taken as a reconnaissance sample to complete the sociological procedures of the research . The list of thinking methods of Sternberg and Wagons was applied to the study sample, and this list measures thirteen thinking methods consisting of (65) individuals, with an average of five vocabulary for each thinking method, which is of the type of self-esteem. The study concluded that the dominant way of thinking among students is the legislative, hierarchical, and executive method. She also pointed to significant differences between disciplines in the Faculty of Basic Education in thinking methods and in favor of scientific disciplines.

Research problem:

Thinking methods are a set of methods and strategies that individuals use in dealing with the available information about the problems and attitudes they face, and it can be said that the individual's way of thinking is gained during the different stages of development, and that there is a clear relationship between the individual's way of thinking and his behavior and the way he deals with knowledge and information and uses it to solve the problems he faces. (Murad,1989, p. 125)

Many educational systems ignore the role of thinking methods in a large way, as they are interested in teaching students information without informing them about how the learning process takes place, as the failure of many students is not due to their weak intellectual abilities or the low level of their intelligence, but rather due to their acquisition of inappropriate thinking methods (Al-Tayeb, 2006, p. 31).

Weak interest in thinking methods is one of the reasons for students to acquire wrong thinking methods, which may lead them to very bad results such as being affected by the words in circulation and accepting them without criticism or scrutiny and escaping from facing problems.Al-Hamouri, 2009, p. 6)

Many Arab studies, such as the study of (Al-Yousfi,2010) and the study of (Quality,2016), indicated that the educational institution ignored the interest in mental processes and directed most of its attention to conservation, indoctrination and passing tests, which is no longer an effective method in making students more able to understand and absorb scientific material and its applications in different areas of life, which led to the emergence of an emotionally oriented generation transmitted by logical thinking.

The researcher also noted through her teaching work in colleges that there is a lack of interest of the faculty in determining the thinking methods that students should acquire in teaching and in preparing paragraphs for the daily and monthly evaluation of students. This may lead to the acquisition of different types of wrong thinking methods and compassion for emotions and escaping from confronting problems or posing them to others to solve them. Thus, their thinking is more likely to have the wrong routine nature and compatibility with emotions and

escaping from facing problems or proposing them to others to solve them. Thus, their thinking is more likely to have a rigid routine character that does not go far behind existing things and phenomena. Rather, it is a thinking that attributes the situation to the nearest similar situation and applies what it applied in the previous situation to it without scientific thinking.

The State of Iraq is one of the countries that have suffered through long stages of harsh conditions and pressures and rapid and qualitative changes, which affected all areas of life, including the process of education, and caused confusion to its system and changes in many aspects, including teaching, where it has become not to use methods and methods that develop mental abilities or try to think in the student. These and other things may be the basis for building a new generation with an integrated personality capable of assuming responsibilities and aware of the problems faced and finding solutions by sound scientific methods, which prompted the researcher to study thinking methods according to the theory of Sternberg Kalati

"What are the thinking methods according to Sternberg's theory among students of the Faculty of Basic Education, Al-Mustansariya University?" .

Significance and need of research

The civilizational progress in various fields of life depended on the mind that God Almighty distinguished him with and made man his successor in the land and specialized him from the rest of the other creatures in his higher mental abilities, and urged him to consider his kingdom by thinking and the work of reason and reflection and make his mind and thinking the orbit of commissioning and bearing the burdens of responsibility, as he was able to invent, discover and solve issues and problems and organize his life and avoid many challenges and risks .

Also, man today lives in a world in which information wrestles in light of the progress and knowledge revolution that is increasing and the subsequent renewal and development in our lifestyle. This era is characterized by the excellence of knowledge and rapid developments, especially in the thinking methods used by the individual in dealing with his problems and different life situations.

Ownership of man has seen a sophisticated knowledge in the forefront of thinking that prompted many researchers to pay wide attention to him, it is a desirable and desirable goal that can only be dispensed with, especially when faced with a problem that cannot be solved by multiple behavioral methods, as it is considered the finest mental activities (Al-Shamisi, 2002 : 178) .One of its most important characteristics is that it is dynamic and not static and the

possibility of acquiring it by social normalization as it is preferred in places and times and is not desirable in other places. Individuals have a profile of methods and not just one method, as the individual tends to have one method within each category. (Abdul Hamid and Na 'imat, 2011: 73)

The concept of thinking methods refers to the preferred strategies and methods of the individual in employing his mental potential and acquiring knowledge, and the interest of researchers and educators in this concept has stemmed as one of the factors affecting the educational process as one of the distinctive tools of the learner, which he uses while receiving and processing the information received from the surrounding environment.Jarwan,2014: 66)

The teacher is the most prominent person who can move the thinking activity of the learners and must be a model of the cognitive behavior that appears in life. One means of developing thinking and its methods is to use multiple tests for evaluation, and this is what the teacher should encourage when his students and questions and phrases that work to provoke the recall of information in the individual or the learner . And make the information he collects meaningful to him through their awareness of the different relationships between them such as cause and effect, composition, analysis, comparison, brevity, summarization and simplification .

Thinking methods in their forms must be taught and instilled to our students through the general educational stages, by integrating them into all curricula, including the university stage, in a subtle and attractive manner, and by scientific systems that enable the teacher to activate the learner's thinking methods to reach the information properly and employ and benefit from it, and this requires the preparation of a distinguished cadre that has the ability to do so or arrange the skills and thinking methods as an independent subject in an integrated curriculum that accompanies the learner throughout the stages of his education, so that he has the ability to think with high skill and proficiency based on the scientific foundations of thinking, and thus we have brought about a qualitative and distinctive development in education, and instead of transferring knowledge to the learner through the classroom by memorizing and teaching only without guaranteeing the quality of the outputs, we will reach through education thinking to the learner to understand the information and investigate it from several places and then use it in life matters, and ensure the quality of inputs and the results of education, and will be eliminated from thinking and abstinence because of thinking and abstinence, as we will use the judiciary to use the information.

One of the most important bases on which the developed countries rely in preparing qualified human resources to manage the process of progress, and raising the standard of life is university education, as it is the most important and most prestigious stages of study, rising from the economic and social aspects, and through which the student obtains the certificate that harnesses all what he learned in his field of specialization in order to achieve the goals of development plans and the advancement of civilization (Military, 2005 : 188).

Based on the above, the importance of the current research and the attempt to study the thinking methods of university students is highlighted, which contributes to encouraging students to adopt thinking methods that are objective and make them more able to understand and assimilate the study material and even in their daily relationships and behaviors. Thus, the importance lies in studying the thinking methods according to Sternberg's theory among students of the fourth stage of the Faculty of Basic Education.

The Aim of the Research:

1-Identifying the thinking methods in the light of Sternberg's theory among students of the fourth stage of the Faculty of Basic Education.

2-Differences in the thinking methods of students of the Faculty of Basic Education at Al-Mustansiriyah University in light of their academic specializations.

Search hypotheses

1- There are no statistically significant differences between the average scores for thinking methods according to Sternberg's theory among students in the fourth stage of the Faculty of Basic Education.

2- There are no statistically significant differences between the average scores of the thinking methods of the students of the Faculty of Basic Education at Al-Mustansiriyah University in light of their academic specializations.

search limits

1- Thinking styles for Sternberg and Wagons style (legislative, hierarchical, anarchic, global, local, Oligarchic, monarchic l, executive, ruling, liberal, conservative, external and internal)

2-Students of the fourth stage, Faculty of Basic Education, Al-Mustansiriyah University for the academic year (2019-2020)

Define terminology

Thinking styles he knew.

(Qatami,1990) It is "the way in which an individual receives, organizes, registers and achieves expertise and thus integrates it into the store of knowledge " (Qatami, 1990: 158)

(Habib,1995) (that "are the intellectual methods by which an individual deals in solving his problems and attitudes" (Habib, 1995: 14).

(Sternberg, 1997) It is "the preferred way of thinking in which one uses or employs one's abilities or intelligence" (Sternberg, 1997: 17)

Procedural definition of thinking methods:

This is what is obtained from grades while answering the list of thinking styles for five categories of Sternberg.
Chapter 2

Literature Review

Thinking Styles

The way in which the individual directs his intelligence is the way of thinking, not concerned with the level of intelligence, but the strategies of employing intelligence , which are tendencies or tendencies and desires for a greater percentage of abilities , and the learner's strategy in guiding the mind within the overlap or environmental parts between knowledge and personality, so Sternberg arranged thirteen methods that join under the five areas, which are as follows:

1- Tendency includes (conservative, liberal)

2- Level and includes (local, global)

3- The form includes methods (Oligarchic, hierarchical, anarchic, Monarchic)

4- Domain includes (internal, external)

5- Position includes (judicial, Legislator, Executive)

Sternberg explains that human nature always tends towards only one method for each of the five fields. Individuals' characteristics in light of Sternberg's thinking styles can be mentioned as follows : (sternberg,1994:23)

First : tendency and includes the following methods: -

1- Conservation style Conservation style Individuals in this category are distinguished by adherence to laws, care and order, and they move away from ambiguity, avoid change and love the familiar and what they are used to.

2- Liberal style These individuals are characterized by their preference for radical change and the possibility of going behind procedures and laws and a tendency to calm down and take events that are not previously recognized.

Second : The level includes the following methods: -

1- The local style is local style and these individuals are characterized by their preference for the great difficulties that need details, orientation towards practical events and penetration of details .

2- Global style The individuals of this method are characterized by innovation, invention, change, unknown events, and generalities, and they move away from the details by their desire to delve into abstract topics, and high-ranking concepts.

Third : The form includes the following methods:

1- The Oligarchic style The individuals of this method are characterized by having many goals and different motivation towards those goals according to their importance, and they are also very anxious, confused and nervous.

2- Hierarchic style These individuals are characterized by solving what is complex of things and flexibility in dealing as they are organized in their work and provide topics that have priority and arrange them in a hierarchical manner and do a lot of work at the same time, and do not believe in the principle of end justifies the means, and specialize in logic and realism in their handling of difficulties and give priority to the most important goals.

3The Anarchic style Individuals are characterized by their rush towards goals and needs, and they do not desire the regime and believe that the end justifies the means and flounder in the face of difficulties, extremists and confused in the events they face and they are characterized by ambiguity, so we do not realize the motives behind their actions .

4. The Monarchic style is flexible and tolerant, they believe in the principle of ends that justify the means and have no interest in alternatives and priorities, they want history, science and business, they have poor potential in logical thinking and analysis and they focus all the time on a specific goal, they are confused in terms of their representation of problems.

Fourth : The field includes the following ways of thinking

1- The external style and its members are distinguished by their work within teams and simple in terms of personality and social in their dealings and are keen to solve social problems and are sensitive and socially sensitive.

2- The internal style desires individual actions away from the group and prefers unity, and their orientation towards the task or work is self-involved, accurate in their work and they desire innovative and analytical problems and employ their intelligence in situations away from others.

Fifth: Job and includes the following methods:

1- The judicial style is characterized by objectivity and realism in dealing with the difficulties that they face in judging the actions of others, evaluating procedures and rules, wishing to apply and implement laws, meditating on what is tangible, evaluating and analyzing situations and having a high potential for imagination and innovation, and are inclined to different actions such as guidance, guidance, writing criticism, and evaluating programs .

The legislative style Legislative style and characterized by a tendency to solve unfamiliar problems and desire to innovate, design and plan to build content to overcome difficulties, they prefer to renew and study things in their own way and desire for works that enable them to use the legislative style such as : artist, writer, innovative writer, architect, politician or policy maker.

2- Executive style and its members are characterized by a preference for executive work such as : manager, clergyman or lawyer and employ old methods to solve problems and follow logical rules. (Abu Al-Maati,2005 : 375)

Classification of thinking methods: Classifications vary from researcher to researcher according to variables and scientific foundations, as follows:

Abu Alam Division 1993 Thinking styles in two types:

أ- Free and relative guidance of ideas : It is meant to express needs and desires and may form unreal relationships based on simple ones close to imagination such as dreams, illusory games and daydreams .

ب- Directing ideas that aim to solve a problem or create something useful , and ideas divide thinking into two parts:

Calendar or critical thinking: We employ this type of idea to examine opinions and know their validity and issue judgments about them or balance between two or more positions to choose between them.

Innovative thinking: This type of idea is distinguished in the production of new things of value and these

innovative works serve a specific purpose or lead to finding solutions to problems . (Habib, 1997: 106)

Thinking styles are influenced by a number of factors :
There are four factors on which thinking styles are formed according to Sternberg's point of view, namely:

1- **Culture:** There are many societies that focus on following traditional methods, including those that are conservative or executive, and some of them promote diverse methods in their cultures, and some of them emphasize creativity and creation and reach the best discoveries .(Al-Tayeb, 2006: 54)

2- **Gender:** Gender or gender influences an individual's thinking context. Males may be unique, adventurous, advanced in risk and creative. Females are shy, aggressive and cautious. These qualities express understanding . (Al-Tayeb, 2006: 58)

3- **Parents and how to deal with their children :**   The child naturally asks a lot of questions and receives various answers. The child's understanding depends on the ways in which the parents deal with their children's questions.

An example of this is encouraging parents to ask questions that help them analyze and judge things and compare things. This develops the corrective method. If children are left to answer and search for answers themselves, this legislative method is developed.

4 - Past experience: It is better to have previous information related to a problem for ease of solution. (Habib, 1997: 122)

5- Mental preparation:
Problem-solving depends on the extent to which situations are understood. The individual may use old methods and methods that are used or employ modern thinking methods , all due to the extent of mental preparation in the individual.

6- Job stability:

Job stability is the routine of employing old methods and standards and ignoring all that is new , so thinking is static and it is difficult to discover new jobs.

7 - **Emotional bias:**   Thinking about emotions is affected by what biases some things or falls into error. Trends, beliefs and intellectual tendencies are all factors that drive thinking and complicate problem-solving. (Jaber, 2008: 208)

Characteristics of thinking styles: from the characteristics identified by Sternberg (El Dardier, 2004: 30)
   - Methods are not abilities themselves but are details in the use of abilities .
 - Success depends on agreement andcoordination between capabilities and methods in the sense that the methods are important for the quality of the work we choose
   - Methods can be measured
   - Individuals tend to have one style within each field and have a profile of methods and not just one style.
   - Life choices require appropriate methods and abilities.
In **2009,** Hamour added a set of principles:
- There are some methods that fit a specific situation and do not fit another situation, that is, there are no good and bad ways of thinking.
 - Thinking styles are relatively stable but are subject to change depending on the different stages of life .
- It can be taught to children and students, although they acquire their ways of thinking through social interaction with others
- Although there are some methods that dominate the personality of the individual, individuals do not use only one method, but rather work to change these methods according to the situation they deal with**.**(Al-Hamouri,2009: 41)

Previous studies: The researcher will address thinking methods as previous studies

Table (1) Objectives, samples, tools and means used in previous studies

Results	Place of study	Toolkit	Sample	Objectives	Education	No.
The results showed that the dominant thinking method among the different methods is one-dimensional thinking and that the dominant unidimensional thinking method is the analytical thinking of a sample of male professors, and the ideal thinking of a sample of female professors. The results concluded that the distinctive thinking methods of cadres in universities differ according to the type of college. The professors of the Faculty of Engineering and Science enjoyed the method of synthetic thinking, while the professors of the Faculty of Pharmacy and Dentistry were distinguished by the ideal thinking method.	Ain Shams University	Bramson and Harrison scale	(88) females (222) males	This study focused on identifying the actual thinking strategies of the teaching staff at Ain Shams University. It also focused on evaluating the thinking methods of the teaching staff in the various departments at the university and whether there are prevailing methods among the faculty members or not.	Habib Study, 1995	1
The results showed a positive correlation between learning styles and thinking styles and the differentiation of university students' learning styles from their thinking styles	Taibah University	Scale for Culp and McCarthy (2005) and List of Thinking Styles for Snumberberg andWagons (1991)	(318) male and female students	The study aimed to find out the nature of the distinctive learning and thinking methods of students of Taibah University in Madinah in light of their levels of achievement and their different academic specialties	Mr. Abu Hashim's study,2008	2
There are no differences between the thinking methods and the learning methods of the students of the Faculty of Jurisprudence and the existence of a varied relationship between the type (positive - negative) and the significance (significant - not significant) between the thinking methods (monarchic - Hierarchic - anarchic - Oligarchic - legislative - executive – judicial - global - local - liberal - conservative - external - internal) and the learning methods (adaptive - convergent - receptive	Faculty of Faqqa	Two tools, one for Westburnberg's thinking styles and the other for Kolb's learning styles.	(324) students	The study aimed to determine the thinking methods according to Sternberg's theory among the students of the Faculty of Faqaa	Tangerine study,2010	3

- subordinate) among the students of the Faculty of Jurisprudence						
It has reached a number of conclusions: teachers differ from teachers in the thinking methods of legislators, global, liberal, local and conservative in favour of teachers . And the existence of differences between male and female students in the legislative, executive, conservative ance and global for the benefit of students. In addition to the existence of some significant relationships between teachers' beliefs and dislike of their thinking styles and the lack of a significant link between students' thinking styles as teachers .	China	Grigorenko and Sternberg Tools 1993	Student 1217	The aim of this study is to identify the nature of the relationship between the thinking methods of teachers and students, in addition to the nature of the relationship between the thinking methods of teachers and their beliefs as a motivation for achievement.	**Wong study (Weng,1999**)	4

(Habib,1995: a), (El Sayed Abu Hashim,2008: 141), (Tangerine,2010: 165-181), (Weng, 1999:43)

Benefiting from previous studies

1- The current study agreed with all the previous studies in terms of the objectives, which is to study the thinking methods . One of them added another objective of diagnosing actual thinking strategies such as the study (Habib,1995) and studying the relationship between thinking methods and learning methods such as the studies of (Mr. Abu Hashim,2008) and(Al-Yousfi, 2001). As for the foreign study of (weng, 1999), it referred to the study of thinking methods motivated by achievement .

2- Studies varied in terms of the research sample, ranging between (300-450) male and female students, while the current study reached (400) male and female students .

3- The current study agreed with all studies in terms of the type of the male and female sample for the university stage except the study of (Habib,1995) applied to the teaching staff and the study of (weng, 1999) applied to students and teaching staff .

4- The studies differed in terms of place, including one applied at Ain Shams University as a study (Habib,1995). As for one study (Mr. Abu Hashem, 2008), it was applied at Taibah University, while a study (Youssafi,2001) was conducted at the Faculty of Faqqa and a study(weng, 1999) was conducted in China.

5- The current study agreed with all previous studies in using the questionnaire as a research tool, but some of them used the Harrison and Bramson scale as a study

(Habib,2015), while others used the Sternberg and Wagner scale (1991) as in the current study.

6- Studies differed in terms of statistical means. (Mr. Abu Hashim, 2008) used the arithmetic mean, standard deviation and correlation coefficient. As for the current study, the arithmetic mean, standard deviation and coefficient F were used to extract the results.

7- The study (Al-Yousfi,2001) differed from the rest of the studies in taking gender, stage and specialization and trying to find the differences between the two genders in terms of thinking methods, stage and specialization. As for the current study, the specialization was taken between the humanitarian and scientific departments only considering to know their thinking methods.

8. The studies differed in terms of results. The study of (Al-Habib,2015) found that the preferred thinking strategies of university professors differ according to the type of college, while (Mr. Abu Hashim, 2008) found that the thinking methods and learning methods are related and there is a difference between the thinking methods of students at the university from their learning methods and the study of (Al-Yousfi, 2001) whose results were indicative (not indicative - Dalah) and relationships of different type (negative - positive) between the thinking methods and the study of (weng, 1999) reached the difference of teachers from teachers in the methods of legislative, global, liberal, local and portfolio thinking in favor of teachers . And the existence of differences between male and female students in the legislative, executive, conservative ance and global

for the benefit of students. In addition to the existence of some significant relationships between teachers' beliefs and hatred of their thinking methods and the lack of a significant link between the thinking methods of students such as teachers, the current study has concluded that the prevailing methods among students of the Faculty of Basic Education are the method (legislative, executive, and hierarchical). Scientific disciplines are better in terms of thinking methods than human disciplines.

Chapter Three

Search procedures

The current **research community** is determined by the students of the fourth stage at the Mustansiriyah University/Faculty of Basic Education for the academic year (2019-2020), as the number of students in the

community was (1426) males and females, i.e. (644) males, including (472) from the humanitarian departments and(172) from the scientific departments, and(782) females,including (591) in the humanitarian departments, and(191) in the scientific departments, and table (2) shows this

Research Sample

The researcher preferred the applied random method to determine the sample from the humanitarian and scientific departments of the fourth stage, as the sample number reached (400) students, which is a sample agreed upon by the experts, including (93) students from the scientific departments and(307) students from the humanitarian departments except for my department (Riyadh children and the first grade teacher)

Table (3) The research sample distributed by departments, specialization and gender

No.	Scientific Departments	Males	Females	Total	Humanitarian Departments	Males	Females	Total
1	Mathematics	24	19	43	Arabic	28	23	51
2	Science	15	20	35	English	23	25	48
3	Computer	7	8	15	Special Education	9	14	23
4					COUNSELLING	14	17	31
5					Art Education	7	12	19
6					Physical Education	15	9	24
7					Geography	15	24	39
8					Date	10	17	27
9					Islamic Education	11	24	35
10					Family Education	3	7	10
	Total	46	47	93		135	172	307

Research Tool: The Tool for List of Thinking Styles prepared by Sternberg & Wagner (Sternberg & Wagner,1990) has been adopted. There are a number of measures as a measure of thinking styles for Katherine and Kathryn (Kathryn& Kathryn, 1991), a measure of thinking styles for Torrance 1977, and a measure of Harrison& Bramison,1982).

This list consists of (65) items of the type of self-esteem in the form of questions asked to the student to find out their

thinking styles that they employ in organizing and leading things at home, at university, at work and at school according to the seven-response scale (fully applicable, highly applicable, small, I don't know, not applicable to a small degree, not applicable to a large degree,not applicable at all) and the distribution of grades in the form of (1,2,3,4,5,6,7) and the list does not collect a total score, but for each sub-scale a degree of its own as shown in the table below

Table (4) Sternberg's Thinking Styles and Items

Methods	Items	Methods	Items
Conservative	7, 20, 33, 46, 59	External	13, 26, 39, 52, 65
Liberal	6, 19, 32, 45, 58	Internal	12, 25, 38, 51, 64

LOCAL	5, 18, 31, 44, 57	The anarchist.	11, 24, 37, 50, 63
The Global	4, 17, 30, 43, 56	Oligarchic	10, 23, 36, 49, 62
Judicial	3, 16, 29, 42, 55	Monarchic	9, 22, 35, 48, 61
Executive	2, 15, 28, 41, 54	Hierarchic	8, 21, 34, 47, 60
Legislative	1, 14, 27, 40, 53		

Psychometric properties:-

A: Face Validity: That is, to what extent does the tool appear ostensibly to measure what it was designed for? It is the general form of the instrument, in terms of its formulation and the type of its vocabulary, and it deals with the instructions of the instrument, its accuracy, the degree and characteristics of the subject, and the suitability of the instrument for the purpose for which it was designed (Al-Kubaisi, 2007: 195), and it is reached through a competent judgment on the measured degree of the phenomenon . Therefore, the researcher presented the questionnaire in its initial form to a group of arbitrators in the field of competence, a total of (9) arbitrators, and asked them to express their views in its paragraphs and the extent to which each paragraph is related to the field to which it belongs and the clarity of its idea and the soundness of its language in a manner appropriate to the society in which the questionnaire applies and whether there are any observations and proposals for deletion, amendment and addition to determine the extent of its validity in measuring what it was designed for, as the number of paragraphs of the scale prepared for the study was (65) paragraphs in its initial form, agreed upon by the arbitrators with a percentage of approval of more than (92%) and thus represents a pattern to determine thinking methods.

B.Application of the tool to the reconnaissance sample

The list of thinking methods for Sternberg was applied to a survey sample of (100) male and female students who were randomly selected from the students of my department (Riyadh Children and First Grade Teacher) for the purpose of knowing the clarity of the instructions of the answer and the time taken to answer (70) minutes about the paragraphs of the scale and measuring stability .

Distinctive power of vertebrae (distinct validity)

The distinctive power of the tool "means the ability of the paragraphs to distinguish between individuals with high grades and those who receive low grades in the attribute measured by all paragraphs." (Ebel) indicated that the goal of defining the distinction of phrases is to maintain the distinctive phrases in the tool (Ahmed, BT :258) and the paragraphs were analyzed statistically using the method of

the extremist groups, the upper group and the lower group according to the following steps

- Scores on the scale are arranged in ascending order .

- Two extremist groups (50%) and(50%) were selected.

- The differences between the two groups were chosen using two independent samples, the t-test, as the significance of the differences between the lower and upper groups on the paragraphs of the scale was considered an indicator of the distinctive strength.

C- Tool stability:

Stability means that the scale is stable and does not contradict itself, meaning that the scale gives the same results with an equal probability of the value of the coefficient as it was reapplied again to the same sample.Rusan, 1999: 57) to reveal the stability coefficient in the results with a two-week interval from the first application. Thus, the researcher relied on the method of retesting and equating Alpha-Cornebach to find stability, as she applied the tool to a group of students who do not belong to the research sample, which is (100) male and female students in a stage that was chosen in the random way, and by calculating the Pearson correlation coefficient between the two applications, the results ranged between (0.77-0.83) and the values of the stability coefficients in the Alpha-Cornebach method ranged between (0.79-0.83).

Apply the tool

The researcher applied the questionnaire to the original sample after the validity and stability procedures on Sunday (20/10/2019) until (31/10/2019) the first semester of the year (2019/2020), after collecting the data, they were classified and used the appropriate statistical means to reach the results of the research .

Statistical means: The SPSS was used

Chapter Four

Presentation and interpretation of results

To verify the research hypothesis, which states that "there are no statistically significant differences between the

average scores of thinking methods according to the Sternberg theory among students of the fourth stage of basic education" . The prevailing thinking methods of the students of the Faculty of Basic Education, Al-Mustansariya University, were measured. The results showed that after using the arithmeticmean and standard deviation, their preferred thinking method is the legislative method with an arithmetic mean of 5.14 of the total score, and the Hierarchical method obtained an arithmetic mean of 5.09, then the executive method obtained an arithmetic mean of 5.01 , where we find the legislative and executive method belongs to the functional category, the Hierarchic belongs to the thinking methods in terms of form, while the students' degree in the global method in terms of level decreased to 4.5 .   According to the division of thinking methods as in Table (6)

Table (6) The response of the sample vocabulary according to thinking methods

The Methods:	Mean (out of 9)	standard deviation	Coefficient of variation
Legislative	5.14	1.25	25%
Hierarchical	5.09	1.25	24%
Executive	5.01	1.24	24%
monarchic	4.85	1.19	25%
LOCAL	4.79	1.14	24%
Oligarchic	4.77	1.23	26%
The anarchist.	4.77	1.12	23%
External	4.77	1.28	27%
Internal	4.57	1.21	27%
Judicial	4.64%	1.17	25%
Conservative	4.45	1.19	25%
The Global	4.5	1.11	25%
Liberal	4.6	1.17	28%
Mean	4.46	0.95	20%

Thus, the prevailing methods among students of the Faculty of Basic Education at the Mustansiriyah University are: the legislative method, the hierarchical method, the executive method. The different order of these methods differs from other studies due to the different nature of the thinking of each society from the other, as the societies in which these studies were conducted differed, and confirms what Sternberg pointed out in the theory of mental control, where he stated that thinking methods have a social aspect and may also be affected by the environment in which the individual lives (sternbrg&wagner 1991) .

The consequent curriculum, which is addressed by students, is another factor affecting their way of thinking, as it focuses on a group that develops thinking methods only   .

It is noted that people who own the legislative method prefer difficulties and obstacles that are not known beforehand, and they tend to organize the content and construction of a system for the method of solving the problem, employing new designs and innovations, planning them to the fullest, participating in legislative activities and accomplishing things in their own way, and they tend to work that enables them to use the legislative method, such as a writer, artist or innovative writer.

This requires teachers to try to create an innovative environment, test various teaching strategies to raise their level of thinking and guide them towards the best ways to carry out their academic tasks, and encourage group research projects and university activities in which the student has the largest and active role. They also have a good awareness of priorities (hierarchical), are serious about doing business, and do what is required of them with keen interest in light of specific instructions (executive) . This is the usual style of a college student.

Determining the second hypothesis Studying the thinking methods according to specialization

There are no statistically significant differences between the average scores of thinking methods according to Sternberg's theory among students of the Faculty of Basic Education at Al-Mustansiriyah University in light of their academic specializations.

The thinking methods among students were compared according to the variable of specialization between the total departments using the value of " f " to analyze the variance in one direction so that the test resulted in significant differences between the departments in the thinking methods and as in Table (7)

Table (7) Degree of thinking methods by specialty

Calculated morale	F value	Mean	Humanitarian Departments	Scientific Departments	Methods
0.000	6.685	5.3	4.86	5.58	Legislative
0.000	7.254	4.82	4.59	5.30	Executive
0.000	9.633	4.51	4.19	5	Conservative
0.037	2.864	4.75	4.64%	4.94	Oligarchic
0.013	3.649	4.60	4.51	4.93	Internal
0.017	3.461	4.59	4.47	4.89	Judicial
0.002	5.114	4.69	4.56	4.88	LOCAL
0.001	5.440	4.55	4.51	4.75	Liberal
0.005	4.426	4.48	4.21	4.68	The Global
0.000	8.744	4.74	4.58	5.35	External
0.008	4.030	4.95	4.75	5.34	Hierarchical
0.016	3.517	4.79	4.61	5.14	monarchic
0.001	6.005	4.66	4.43	4.02	The anarchist.
0.000	6.281	4.80	4.53	5.12	Mean

Looking at Table No. (6), we note the averages of the methods for each specialization, it appears that the highest arithmetic mean for the scientific specialization, so the legislature obtained in terms of the job the highest percentage of 5,58 and the lowest percentage was for the global method in terms of level 4,68, and the humanitarian specialization obtained the legislative method in terms of the job the highest percentage of 4,86, and the lowest percentage for the conservative method 4,19.

There are significant differences in the legislative method in terms of function between the scientific departments and the humanitarian departments and in favor of the scientific departments,and there are significant differences in the executive method in terms of function between the scientific departments and the humanitarian departments, in favor of the scientific departments.

There are no significant differences in the conservative ance style in terms of function between the scientific and human departments, as well as no differences in the global style between them

There are also no significant differences in the local method in terms of level between the scientific departments and the humanitarian departments because of their tendency to solve problems that require searching for details and their enjoyment of studying the facts of science in detail . In

addition, there are no significant differences in the liberal style in terms of tendency between these disciplines .

There are significant differences in the conservative stylistic in terms of tendency and hierarchical style in terms of form between the scientific departments and the humanitarian departments and in favor of the scientific departments.

As for the monarchic, Oligarchic, anarchic and internal methods, there are no significant differences in terms of form between scientific disciplines and human disciplines, and there are also significant differences in the external method in terms of field between the mentioned disciplines and in favor of the scientific specialization.

There are significant differences in the average overall degree of thinking methods between scientific and human disciplines, in favor of scientific specialization. This result indicates that specialization plays a role in the formation of thinking methods, due to the nature of the academic specialization, and the specific curricula and materials it includes have implications for the behavior of the individual and his thinking methods. This was pointed out by Sternberg and Wangner,1991.

The study environment also contributes significantly to the formation and development of certain thinking methods and may also contribute to the non-growth of certain

thinking methods . Differences are not really in the competence of the individual, but in what is proven at different points or locations of specialization(Sternberg, 1997). The reasons for thinking are not fixed, they may be of value in one place and not of value elsewhere. Workshops that were appropriate in university departments in scientific fields are likely to be unacceptable in other departments in the same university or another university, because the importance of these workshops may be different or may have contradictory or contradictory research methods with it (Sternberg, 2004: 107). Methods that fit and are in harmony with the nature of work, study and research in one place may not work elsewhere. Thinking styles are variable across situations, and thestance and nature of the study will change the ways ofthinking that we prefer in each situation.

This research thus highlighted the importance of identifying the prevailing thinking methods among students, as knowledge of the preferred thinking methods of students helps to strengthen them and how to be able to deal with information and arrange curricula according to the prevailing thinking methods , which increases the academic and cognitive achievement of students, and knowledge of the prevailing methods helps in the distribution of students to different and appropriate academic disciplines, which reduces their academic stumbling.

Conclusions : The research reached the following results

1- The prevailing thinking methods among students of the Faculty of Basic Education, Al-Mustansiriyah University are : legislative method, hierarchical method, and executive method.

2-There are significant differences between the disciplines in the Faculty of Basic Education in thinking methods. This result indicates that the specialization plays a role in the formation of thinking methods, and this is due to the curricula and materials and the way the teacher offers the course of study, which provokes their thinking, that the type of study specialization is one of the factors affecting thinking methods, and that it is not completely fixed and may change across different tasks or situations.

Recommendation

1- Instruct teachers to train students in thinking techniques.
2- Teaching students to link thinking methods with thinking methods and skills.
3- Train faculty to explore students' thinking styles and integrate them into teaching style.

4- Developing workshops and mentoring programs to develop the thinking skills and methods of intermediate and preparatory students.

Suggestion

1- Studying the relationship between teachers' thinking styles and their students' thinking styles.
2- Studying the extent to which the student's thinking style affects his learning style.
3- Studying the relationship of thinking methods to the motivation for achievement among university students.

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Appendix (1)

Sternberg & Wagner's List of Thinking Styles

NO.	Ferry	A	B	C	d	E	A nd	G
1	Stick to specific rules and familiar ways of doing things							
2	I prefer to challenge traditional ways of solving problems and look for new, better ways of solving them							
3	I prefer to deal with specific problems rather than general problems							
4	I pay little attention to detail in the topics that confront me							
5	I prefer situations where I can compare different ways of solving problems							
6	I prefer to reach solving my problems in specific ways							
7	When faced with a problem, I use my own ideas and strategies to solve it							
8	When starting a task, I prefer to come up with new ideas for the task through friends							
9	I tend to carry out all stages of the project or work without having to take the opinions of others							
10	I can move from one task to another easily because all tasks seem to me to be equally important							

11	When discussing or writing a topic, I adhere to views or opinions that are acceptable to my colleagues							
12	When speaking or writing certain ideas, I focus on one main idea							
13	When I do certain things, I arrange them in order of importance							
14	When I am in charge of a business, I prefer to follow the methods and ideas that have been used before							
15	When faced with a problem, I prefer to use new methods and strategies to solve it							
16	When writing or discussing a topic, I believe that focusing on details and facts is more important than addressing the overall picture of the topic							
17	When I do work, I care a lot more about general rules than details.							
18	I tend to evaluate and compare divergent views and opinions							
19	I care a lot about using appropriate methods to solve any problem I face							
20	I like to try my ideas and watch how well they work.							
21	In the case of discussing or writing a particular report, I prefer to mix my own thoughts with those of others							
22	When I try to make a decision, I rely on my own judgment of the situation							
23	When I find myself required to do many important things, I try to do as much of them as possible, no matter how long it takes me to do them.							
24	I prefer to perform tasks or projects that are well received by my colleagues							
25	When I try to make a decision, I tend to focus only on the main objective							
26	When I start performing a task, I try to link the sub-themes to the overall objective of the task							
27	I prefer situations that allow me to follow a set of specific rules							
28	I prefer to do things in new ways that have not been touched upon by others in the past							
29	I prefer to collect specific or detailed information about the projects I am undertaking							
30	I tend to emphasize the general facets of the issues I am addressing or the overall impact of the project or work I am doing							
31	Best projects where I can compare different viewpoints							
32	Enjoy doing things that are performed with specific instructions							
33	I prefer problems that allow me to use my own methods to solve them							
34	I prefer to engage in activities that allow me to interact with others as a member							
35	I prefer to work alone when performing a task or problem							
36	I prefer to address all kinds of problems as well as those that seem to be of little importance							
37	When I have to do a bunch of important things, I do the most important things for me and my colleagues.							
38	If there are so many things I have to do, I do what's most important to me.							
39	When I face some problems, I have a good sense of how important each problem is and in what way I deal with it							

40	I prefer to deal with tasks and problems that have fixed rules that must be followed to accomplish them							
41	I prefer to change routine styles in order to improve my way of doing the job							
42	The best problems that require my attention to detail							
43	I prefer to work on projects that care about general issues rather than those that care about very specific details							
44	I prefer tasks or problems that allow me to evaluate other people's methods and plans							
45	I prefer to deal with projects that have a specific goal and plan							
46	When I'm on a mission, I tend to start with my own opinions.							
47	When starting a project or business, I prefer to share and exchange views with others							
48	The best projects I can do on my own.							
49	When discussing or writing down my ideas, I take them in the light of everything that comes to my mind							
50	If there are so many important things that I have to do, I do the most important things for my colleagues and colleagues.							
51	I prefer to focus on only one task on time.							
52	When there are many things to do, I have a clear sense of the order and resolution of these problems according to their importance							
53	When faced with a problem, I prefer to solve it in a traditional or familiar way							
54	I prefer to address previous problems and find new ways to solve them							
55	I am much more interested in knowing the parts of the task that I will be working on than its overall importance and impact							
56	When talking about my ideas or writing them down, I prefer to clarify the perspective and context of my ideas, that is, the overall picture of them							
57	Enjoy work that involves analyzing, ranking, or comparing things							
58	I prefer to follow specific rules or instructions when solving problems or performing a task							
59	I prefer situations that allow me to use my own ideas in their performance							
60	I prefer situations that allow me to interact with others and with everyone who works with me							
61	I prefer situations that allow me to use my own ideas without relying on others							
62	I find that solving one problem usually leads to many other problems that are just as important							
63	When I do a task or project, I focus on the aspects that are most important to my fellow people.							
64	I have to finish my project before I can start anything else.							
65	When starting a project or business, I tend to make a list of things to do according to their importance							