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Self-memory among secondary school students

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Abstract---One of the most common problems facing middle school students, which reduces their efficiency and weakens their skills, is their reluctance to perform the things and tasks of memory correctly according to the limits of their mental capabilities (Bandura et al 986). Memory is one of the mysterious concepts that occupies the thinking of scientists and researchers in many fields of science, such as medicine, psychology, and life sciences. Many scientists and researchers have addressed this concept from several angles, conducting experiments and research on memory processes (Hulse et al 1983). Where future memory represents an important and influential variable in the performance of the individual.

Keywords---self-memory, school students, mental capabilities.

Introduction

One of the most common problems facing middle school students, which reduces their efficiency and weakens their skills, is their reluctance to perform the things and tasks of memory correctly according to the limits of their mental capabilities (Bandura et al 986). Memory is one of the mysterious concepts that occupies the thinking of scientists and researchers in many fields of science, such as medicine, psychology, and life sciences. Many scientists and researchers have addressed this concept from several angles, conducting experiments and research on memory processes (Hulse et al 1983). Where future memory represents an important and influential variable in the performance of the individual. However, due to the relatively newness of this concept, it faces a lack of sufficient systemic knowledge as well as the theoretical controversy about the features and characteristics of the various retrieval processes based on reflexive associative processes as opposed to being intentional and emotional (Rizk et al 2016). Studies and research have concluded that future memory is linked to the memory of past

events (retrieval memory), and these two memories are linked, as the future memory includes remembering the intentions of the action, while the past memory works to remember the content of the activities to be performed, and the future memory depends on the content of environmental signals that occur mainly under the control of past memory (Rizk et al 2016). Retrieval memory is of great importance in determining the efficiency of memory, as some evidence indicates that what is usually retrieved is not everything that is stored, which may be due to not using a specific strategy that allows recalling as many previously encoded and stored stimuli as possible, or it may be due to not using aids of recall, whether the aids that the remembered had in his mind or given to him by others (Hasnain et al 2012).

The importance of research

The preparatory stage is one of the important and basic stages, because in this stage the capabilities of individuals in all physical and mental aspects are formed and modified. Therefore, the learner is the main axis in the educational process and its main goal. It is also the basis of the inputs and outputs of the educational process and the means by which all processes and activities work. Memory is considered It is one of the most important cognitive processes in cognitive psychology, where it receives information and experiences from different centres of memory in order to organize, arrange, analyze, and encode them, and thus store and retrieve them when needed (Kadhim et al 1994). The future memory is one of the most important types of memory that the individual uses, because everything that the individual learns can be retrieved through the future memory, as Megam and Lehman differentiate between two types of future memory, which are the usual memory and the episodic memory, where the usual memory is characterised by remembering repeated and familiar actions in a familiar context. As for episodic memory, it is characterised by remembering non-repetitive and unfamiliar actions in an unfamiliar context, and (Marsh 1998) indicated that future memory contributes to helping the individual to identify his next goals at the same time and work at a later time to achieve these goals (Berg et al 2002).

Retrieval memory is of great importance in knowing the extent of memory development in an individual and its activity, and retrieval memory is the basis for the occurrence of future memory. Retrieval memory provides for the retrieval of events and knowledge that occurred in the past. Subjective recall, such as remembering an individual watching a favourite movie, and recall tasks imposed by others, such as how to perform the exam and the purpose of it, as well as unusual recall tasks such as watching a television programme shown for the first time and routine recall tasks, is noted, and it is noted that it is difficult to distinguish between future memory and retrospective, because many successful businesses require the performance and remembrance of past events (Searlman & Herrmann et al 1994; Cohen et al 1999).

Research Objectives

The current research aims to identify the following:

- Self-memory with its components (future and retrospective) among middle school students
- The differences are statistically significant for the subjective memory with its components (future and retrieval) among middle school students according to the two variables: type (student-student), and academic specialisation (scientific-literary).

Research Limitations

The current research is limited to the students of the fifth year of middle school for the preparatory stage in the center of Najaf Governorate, and of the type (student-student) and of both academic specialists (scientific-literary) for the academic year (2021–2022).

The definition of the terms

First, future memory

Definition of Smith and Payne (2004)

Future memory: It is a monitoring process that begins when a person builds an intention that is preserved until it is implemented, because there is a need to store it, preserve it, and recall it when needed. (Smith & Bayan et al 2004).

Second, recall memory

Identified by Smith and Bayan (2004)

It is the memory that is used to distinguish between the intention of the desired future memory and the undesirable thoughts, and it is also used to remember the intention that is supposed to be implemented in the future specifically (Smith & Bayan et al 2004). Smith and Payne's (2004) theory was adopted by the researcher: It is the degree that students obtain as a result of their answers on the scale of subjective memory with its two components (future and retrospective).

Chapter Two: A Theoretical Framework and Previous Studies

First, a theoretical framework

The current priorities in the study of memory have begun to appear in a clear framework, and the individual must be studied not as a mere organ, but as a device for processing information. Psychology was based on Ebbinghaus' precise work on memory and distinguished between immediate and direct memory and indirect secondary memory depending on the method of introspection in its study primary and secondary) (Abdullah et al 2003).

First, prospective memory

The human brain is basically a future muscular organ and is designed to use information from the past and present to form goals and expectations for the future, and it may take from memory a place to generate these expectations for future events that may occur. 660 (Schacter et al., 2007). Future memory is a

person's ability to remember to do something in the future. There are several important stages of future memory:

- The process of forming or encoding an intention.
- Consolidate and maintain this intention during a delay.
- Following intent retrieval, the intended action is carried out (Ellis & Freeman et al 2008).

Since we have a limited attention span, introductory attention processes can be inferred by measuring task interference or ongoing task cost P110 (Harrison & Einstein et al 2010). Whereas future memory is a type of important memory that the learner must have in order to be able to carry out daily school work, given that everything that an individual learns can be retrieved through future memory, which requires internal stimulation that stems from the learner himself and external stimulation (environmental), and future memory It helps the individual to determine his future goals in a controlled manner and to work at a later time to achieve these goals, and future memory has the cognitive function that we use to formulate plans and promises and keep them afterwards when conditions allow (Graf and Grondin et al 2006). Smith (2003) found that participants with better performance on a future memory task showed increased cost (i.e., slower reaction times on the current task) compared to those with lower particle performance.

This indicates a functional relationship between cost and future memory performance, i.e., that the strategic allocation of preparatory directed resources is allocated to a future memory task to improve task performance so that fewer resources are left for the ongoing task, resulting in slower reaction times. According to multi-process theory, the successful performance of future memory tasks varies according to task characteristics that contribute to task difficulty. For example, the characterization or prominence of the cue of future memory, the well-established association between the cue of future memory and the target, and the level of future memory focal processing (Einstein et al 1998). It occurs in future memory, remembering the implementation of a task at a specific moment in the future or at the appropriate time. Distinguishing memory in order to develop our understanding of how goals are translated into actions under the available conditions (Kliegel & Martin et al 2008).

Second, recall memory

Retrieval memory is important in retrieving or recalling information and experiences that occurred at an earlier time, and retrieval refers to the individual's ability to recall information and experiences that he had previously known and stored in memory, and the power of retrieval depends on the strength of the individual's memory. The problem of retrieval is long-term memory. One of the most important problems faced by the individual in memory is that the quantity and quality of information, which is large and varied, makes it difficult for the individual to identify and retrieve it with sufficient accuracy (Al-Sharqawi et al 2003).

Retrieval memory is represented by searching for information, acquiring it and retrieving it. The effectiveness of this process depends on the method of

presentation of the material, the subject of retrieval and its encoding, and the level of processing at which this material is processed. The stages of making a judgement or making a decision about the availability of the information to be remembered; the stage of collecting and organising information, where the individual searches for the required pieces of information and links them together to organise the required response; and the stage of motor performance, which means implementing the required response, and this response may take an implicit form, as happens in cases of internal thinking with things, or outwardly, such as performing movements, words, and writing (Al-Zaghoual and Al-Zaghoual et al 2003). The retrospective component involves retrieving the contents of a future memory intent (e.g., what to do, when to do it). This process depends on the recalled success in encoding, consolidation, and recall et al 1998).

Second (Smith & Bayen Multinomial Model)

Rebecca Smith and Utah Payne distinguish between both types of memory (future and retrieval) such that reminding the individual of what to do is a future component, while stating what the individual is doing, and when he should do it, is a component of attentional retrieval and action, and this model is based on the theory of memory processes. It is suggested that future components include processes that have effects on non-specific sources, implying that the infinitesimals can be validated in these proofs. that future memory includes non-automated processes, and (Smith) pointed out that future memory performs its tasks within the same period in which the individual is engaged in other activities. According to this theory, the processes in which we cannot intervene must not be used. These preparatory attentional processes include non-automated monitoring of the environment to detect the target location. In the case of spatial future memory, which occurs shortly before the existence of the place required for this, these processes impede any clear progress in any other activity carried out by the individual because they prepare the situation for the implementation of the task of the future memory, even in the place where the task is not observed in the past (Smith & Bayen et al 2004). Memory is concerned with remembering to do an action. The polynomial model includes two components: the first measures the preliminary attention processes, and the second measures the recall processes of memory. Smith and Payne identified two main processes in the implementation of memory tasks:

- The first observation process: It is the future memory, and it begins when the individual begins to prepare an order in his mind that he intends to do, and its role ends when he carries out the order he intends to do.
- The second/recall memory processes: these processes are used to distinguish between the goals of future memory and others and to remind the individual of the actions he intends to take (Smith & Bayen et al 2004). Remembering to do something in the future is referred to as a "future memory." For example, a person might have to take medicine at 10 p.m. or send a message to a colleague when he sees it. Existing interpretations of memory depend heavily on underlying cognitive processes, and unfortunately, the methods Conventional statistical analysis that has been used in future memory research cannot adequately address questions related to latent cognitive processes. Polynomial process tree models are

intrinsically stimulating statistical models, and they provide a means to measure latent cognitive processes by estimating model parameters that represent these operations from observable data. The framework of a model is defined by theory-based assumptions about the relationships between various underlying cognitive processes, and therefore we must bear in mind the distinction made by Einstein and McDaniel (1990–1998) between the future component and the retrospective component of future memory performance. According to these researchers, the component The retrospective component is the what and when component of a future memory task, while the future component is what comes to mind from the timely future memory response (McDaniel & Einstein et al 1998).

Third: Einstein & McDaniel, et al., Multi-Process Theory of Prospective Memory (Einstein, McDaniel, and others in 2005)

This theory was presented by Einstein, McDaniel, and others (McDaniel, et al. 2005) and Einstein. In their reference to successful future memory and their method of work, Einstein and McDaniel (2005) mentioned that future memory always includes monitoring power consumption, and often this monitoring is effective. Future memory in carrying out tasks does not necessarily need this activity, as it can be performed automatically. According to their theory, there is a set of mental processes, including attention, that contribute to the implementation of tasks, and that the convergence of the response signal for future memory tasks may be of an automatic nature, in which case it does not require the use of attention processes, especially if the following conditions are met:

- If the sign is prominent or clear,
- If there is a strong connection between the reference and the target task over other tasks.
- If a cognitive process is performed at the same time when the future memory prepares the attention process to move towards the signal, et al. (2005): p22) & (Einstein.

This theory indicates that the performance of future memory depends on these factors mentioned above, but whatever the automatic nature of this implementation, except that there is a small cost for this and that there is a general and two indications for it (2005). Some simple memory tasks require such monitoring processes, while others perform these tasks without the need for such monitoring.

Chapter Three: Research methodology and procedures **Search procedures**

In order to achieve the objectives of the current research, it was necessary to define the research methodology and the community, choose a representative sample, prepare the appropriate tools for measurement, ensure their validity, and the ability of their paragraphs to distinguish validity and reliability, and then apply them to the selected research sample, and use appropriate statistical methods to analyse For the data and its processing, the researcher used the

descriptive-relational approach, and the current research community consists of students of the fifth preparatory grade in its scientific and literary branches, for both sexes, in secondary and middle schools in the centre of Najaf governorate in government schools for morning study for the academic year (2021–2022), and their number reached (4700). male and female students, as the number of male and female students reached (14) schools, and the total number of male and female students reached (2075) male and (44%) of the total community, while the number of male and female schools reached (18) and the total number of female students reached (2635) female students at the rate of 56%). As for the variable of academic specialization, the percentage of scientific specialisation was (82%), with (3839) students, and the percentage of literary specialisation (18%), with (871) students. samples of clarity of paragraphs, instructions, and stability samples by retesting, as well as a sample of statistical analysis.

Tools for research

- **Self-memory scale with future and retrieval components**

This concept has been defined by relying on the theory of Smith and Payne (2004), which is the theory adopted by the researcher to explain its results. It defines self-memory as meaning remembering the individual to do a specific action at a specified time, which depends on cognitive processes.

- **Statistical analysis of the two parts (future and retrieval) of the self-memory scale:**

Conducting a statistical analysis of the items helps to examine the ability of each item to distinguish between the sample members and to make a decision about modifying or deleting items or keeping them. For the test (Reynolds, Livingston et al 2013). The ability of the self-memory scale items to tell people apart has been measured in the following:

- **Discriminatory power by the two-peripheral group method (Groups Contrasted):**

The main objective of calculating the discriminatory power of the paragraphs is to exclude the paragraphs that do not distinguish between the subjects and keep those that do (Ebel et al 2009).

- **Psychometric properties of the scale:** Face Validity is one of the most important psychometric characteristics that must be available in psychological scales and tests because it is an indicator that indicates the scale's ability to measure what it was prepared for (Ebel et al 2009).

- **Construction Validity:** The term "construction sincerity" means what we can decide according to which the tool measures a specific theoretical construction or a specific characteristic, as the homogeneity of the paragraphs and their ability to distinguish and their correlation coefficients with the total degree are indicators of construction validity (Reynolds & Willson et al 2010).

Second, scale stability (Coefficient of Stability)

- Method Test _ Retest:
- Alpha Cronbach's method for measuring self-memory with its components (future and retrospective):

Table 1

Use the re-test and Facronbach methods to figure out how stable the subjective memory scale and its parts (future and retrieval)

Reliability method	Retest	Facronbach	Standard deviation	Standard error
Future memory	0,82	0,88	8,48	3
Retrieval memory	0,84	0,87	8,15	2,82

Results

The first goal

is to identify self-memory with its components (future and retrospective) among the students of the preparatory stage: To achieve this goal, the self-memory scale with its two components (future and retrieval) was applied to the members of the research sample, consisting of 500 male and female students from a middle school. And with a standard deviation of (8.081) degrees, the hypothetical mean of the scale reached (57.5) degrees, and the arithmetic mean of the degrees of the research sample for retrieval memory reached (66.50) degrees, and with a standard deviation of (8.038) degrees, the hypothetical mean of the scale reached (55) degrees. And in order to find out the significance of the statistical difference between them, the t-test for one sample was used, and it was found that there was a statistically significant difference between them. It is greater than the tabular value of 1.96% at the significance level (0.05) and the degree of freedom (499), which indicates that the research sample possesses self-memory with its two components (future and retrospective), and table (26) shows that.

Table 2

The results of the t-test for the difference between the mean scores and the hypothetical average of the self-memory scale with its two components (future and retrospective) for the research sample members

Memory	Sample	The degree of freedom	Arithmetic mean	Standard deviation	Hypothesis mean	(T)-value		Significance level (0.05)
						Calculated	Tabular	
Future	500	499	70.22	8.081	57.5	35.186	1.96	D
Retrospective			66.50	8.038	55	32.004		

It is clear from table (26) that fifth-year middle school students have a subjective memory (future and retrospective) and this result can be explained as the researcher believes that students in middle schools require continuous reading as well as exposure to educational situations, whether on the basis of tests or teaching processes, and lots of information and experiences from the materials and the curriculum that contain educational materials that increase or make

them enjoy extensive scientific experiences that lead them to own a self-memory and retain information and knowledge and the possibility of retrieval at the time of need and include responses to it somewhat for different situations, and these responses are involuntary. According to the Smith and Payne model (2004), which indicates that the individual's feeling that he has the capabilities and capabilities that help him to retain the information and capabilities that he encounters and summon them in times of need, is what allows them to perform well and effectively in various fields. (Smith & Bayan et al 2004).

The second goal

is to identify the statistically significant differences in the subjective memory with its components (future and retrospective) among middle school students according to the variables of type (student-student). Academic specialisation (scientific-literary):

Statistically significant differences for the future memory component according to the variables of gender (student-student) and academic specialisation (scientific-literary): To achieve this goal, the researcher extracted the arithmetic averages and standard deviations of the future memory variable among the individuals of the research sample according to the variables (type and academic specialization), and the table (28) illustrates this.

Table 3
The arithmetic averages and standard deviations of the scores of the sample members in the future memory scale according to the variables of gender and academic specialization

Type		Mean	Standard Deviation	Sample Number
Male	Science	67.79	8.077	190
	Literary	70.53	7.802	30
	Total	68.17	8.077	220
Female	Science	71.94	7.765	220
	Literary	71.40	7.627	60
	Total	71.83	7.725	280
Specialization	Science	70.02	8.168	410
	Literary	71.11	7.653	90
	Total Summation	70.22	8.081	500

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