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Department of Foreign Languages / English

**The Role of Memory in Learning: A Case Study of
Third Year Students at the Department of English, at
Mentoury - University Constantine**

**Dissertation Submitted to the Department of Foreign Languages in
Partial Fulfillment of the requirements for the degree of MASTER**

(L M D) Applied Language Sciences

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DEDICATION

To My mother and my father with gratitude and

LOVE

To My wonderful husband who was very patient to help

me to have my degree.

To My brother, and sisters with love and affection.

To my nieces and nephew.

To all my family members for their encouragement and support.

Finally, a special thanks to my Sweet heart

ISLAM , BASSMA, and to my in laws.

ACKNOWLEDGEMENT

I WOULD LIKE TO THANK MY SUPERVISOR

Dr" EL KOLLI LARBI " Who helped me

with all the means . I thank him for his patience,

guidance, encouragements and precious advice.

" THANK YOU SIR "

General overview :

Learning, how to learn a language is not an easy task.

To achieve this objective the learner should know how to restructure his memory in order to allow the information to settle into it (memory) in a more efficient way .

This can occur if he/she deploys strategies that enable him/her to pursue effectively three processes at the same time, which are: storing, encoding and retrieving (recalling).

Storing: means keeping the information into memory during an interval of time.

Encoding: means putting the information into memory.

Recalling: means trying to retrieve that information from medium term memory or long-term memory for probable use.....

1.1 Statement of the problem :

Most of learners have a notion that memory is simply a ware house, where they keep their knowledge when they are not using it.

This warehouse notion implies that learning is the storing of memory with uninterrupted knowledge.

The corresponding notion of remembering implies that when we need a piece of knowledge, we go into memory, and pull it off the shelves. The problem we are

confronted within this research is the relationship between memory and learning. First, we need to explain the term memory, and then the importance of memory in the field of learning.

1.2 The aim of the study :

This study is aiming to show how learners can retain and recover information about previous experiences, and knowledge through the function of memory, and how can learners acquire new words .

In addition to that, it attempts to clarify the relationship between learning and memory, and how can learners remember experiences and knowledge in an effective ways.

1.3 The hypothesis :

We hypothesize that: if learners deploy efficient strategies, and if their memory is very well structured then the incoming information will settle in it in an efficient way.

1.4 Tool of the research:

In the present research, we have chosen to use an experimental design with control group and two experimental groups. The statistical test which are appropriate for such design are the parametric statistical tests of analysis of variance,ie T test. The reasons behind this choice for an experimental design are

A large number of groups.

1- This technique allows us to investigate the variances between and within groups.

2- Because it is a powerful test which can allow us to investigate whether or not there is a

Significant difference between more than 03 groups.

3- T test also has been used in this research because we want to investigate the difference between

two independent groups ie the controls and the experimentals .

<i>Control Group</i> <i>(receiving no explanation)</i>	<i>Experiment group 1</i> <i>(receiving explanation)</i>	<i>Experiment group 2</i> <i>(receiving a summary)</i>
S₁	S₁	S₁
S₂	S₂	S₂
S₃	S₃	S₃
S₄	S₄	S₄
S₅	S₅	S₅
S₆	S₆	S₆
S₇	S₇	S₇
S₈	S₈	S₈

S₉	S₉	S₉
S₁₀	S₁₀	S₁₀

1.5 The structure of the study :

The present research is basically divided into three main chapters.

Chapter one :

It is devoted to the literature review, ie, it includes many notions about memory, types of memory, how memory changes, the importance of memory

Chapter two:

It is concerned with learning, its definition, its strategies, its theories and its relationship to memory.

Finally, the conclusion that includes the role of memory in the field of learning and some recommendations.

Chapter three:

It includes the results that come after the experimentation that was carried out at the University of Constantine, department of English to confirm our hypothesis stated at the beginning of this research, which says: if learners deploy efficient strategies, and if their memory is very well structured, then the incoming information will settle in it in an efficient way.

Finally, the conclusion that includes the role of memory in the field of learning and some recommendations.

Chapter: 01 Memory

1 - Introduction

1.1 The memory components

1.1.1 The short term store

1.1.2 The long term store

1.1.3 Semantic memory

1.2 Spread or depth encoding

1.2.1 The encoding specificity

1.2.2 Processing strategies

1.2.3 Elaborative rehearsal

1.2.4 Maintenance rehearsal

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1.3 The Three stages view of memory

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1.3.3 long term memory

1.4 Working memory

1.4.1 A new model for working memory

1.4.2 Conclusion

Chapter 01

Memory

1.1- Introduction :

Memory is the ability to retain information or to recover it about previous experiences. As for example when we remember something, a process takes place in which our mind recover and reconstruct information about things we have done or learned.

Additionally, there are multiple types of classification for memory, based on duration, nature and retrieval of perceived items.

1.2- The memory component:

A) – The short term store (s t s) :

Which stores information for short period of time, but it is also of a relatively limited capacity. The length of time information remains in the short term store depends on whether it undergoes rehearsal or not. For example when the learner grasps the meaning of a concept for the first time that information will settle for a

while in short term memory, then it is going to be removed to an other area of memory whether in middle term memory or long term memory.

B) – The long term store:(LTS)

Which has a large information capacity. It is capable of storing information for a very long period of time. The long term store is supposed to be of an unlimited, storage system.

The information will settle in long term memory until the learner will recover it for probable use after using strategies such as rehearsal.

In addition to long term store and short term store, our brains also seem to have different overlapping systems for the primary types of memories.

B -1 Declarative memory and procedural memory :

This can be shown in the following figure .

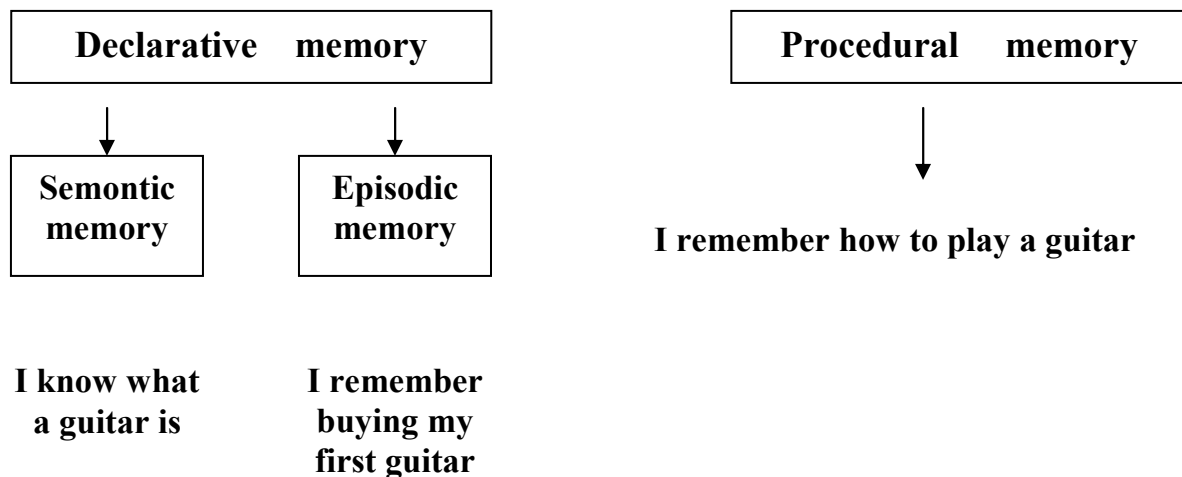


Figure 01 : Declarative and procedural knowledge

Explicit memories also called declarative memories and Implicit memory also called procedural memory.

Declarative memory can be of two types:

C) –Semantic memory :

Is the organised knowledge about the world. It contains all the learning that we have accumulated throughout our lives.

Non declarative (or procedural memory) :

Tulving argues saying that procedural knowledge is the first system to develop during infancy, followed by Semantic knowledge, (wikipedia, 2004).

1.2 – a) Spread or depth of encoding:

Graik and Tulving in 1975 proposed that it might be more appropriate to talk of a spread of encoding than some continuous hierarchical set of analyses conducted on information.

A) The encoding specificity:

The encoding principles of memory (Tulving and Thomson, 1973) provide a general theoretical frame work for understanding how contextual information affects memory.

Specifically the principle states that memory is improved when information available at encoding is also available at retrieval.

B) Processing strategies:

Graik and Lockhart (1972) suggested that rehearsal is an important strategy which matters most in the field of learning?

Memory can be largely improved if information is rehearsed in a deep and meaningful way, especially if rehearsal is the main method for transferring items from short term memory to long term memory .

C) Elaborative rehearsal:

It is a strategy which was proposed by Craik and Lockhart in (1972) which involves deep semantic processing of a given item to be remembered which results in the production of durable memories. It also helps the learner to retain the information during long period of time in his long term memory. As an example an item rehearsed during the first year of the primary school remains live even when the person becomes an adult.

D) Maintenance rehearsal:

It involves rote repetition of an item, in contrast to elaborative rehearsal, this type does not lead to stronger or more durable memories. It keeps the information in an immediate memory only.

E) Information retrieval:

To complete the memory model, we need to address the issue of information retrieval.

When we try to remember something we naturally attempt to generate retrieval cues.

This means that our efforts focussed on how to re-establish the context in which we learn something.

The work of (Thomson and Tulving, 1970.73) and (Fisher and Graik in 1977) gave asupport for the idea that recall is facilitated by retrieval cues that are suitable with the encoding context .

One of the most important notions that have been advanced out of the levels of processing research is "intentionality"; ie whether or not when someone tries to remember something that he has to do with what is remembered.

Some experiments, have reported better recall of words under intentional conditions.

compared to incidental memory conditions, two experiments conducted by Gross and Monters in 1985 .As for example revealed that informed subjects elaborated a memory trace to include attributes that were likely to facilitate an anticipate recall task.

1.2 – b) *The three stages view of memory:*

A) *Sensory memory:*

In psychological research, scientists define a sensation as" a message that our brain receives from our senses" (Sternberg, 1996).

The sense in psychology, is considered as "a physical system, that collects information for the brain, from the external world, or from the internal world of the body, and then translates this information into a language that the brain understands" (Wikipedia, 2004). For example receives a slap on his skin that sense will be transferred immediately to memory after it has been translated in to a language that only memory can understand.

The sensory memory refers to initial recording of information in our sensory system. The information interpreted by the visual system is stored for less than one second in the iconic memory. It corresponds to the brief visual persistence of information for the auditory phenomenon. The information is stored in what is called the echoic memory.

All our sensory receptors provide data to our sensory store which sends it to short term store.

B) Short term memory:(STM)

In 1958 Broadbent was the first who anticipated the theory of short term memory.

In 1969 Waugh and Norman scientists, gave an influential formulation of the theory (Anderson, 1995). However, it was Atkinson and Schiffrin who brought to the theory its most systematic development (Atkinson and Schiffrin, 1968). Short term memory is an important component of memory stores. It keeps information from few seconds up to one minute or two. It has a limited information capacity. The short term store is fed by a series of sensory registers which are micro memories associated with perception.

So, to conclude short term memory acts as a controller feeding in new information and selecting particular processes for pulling information out of the long term memory.

Why do we forget ?

The technique we use to keep information in short term storage is rehearsal.

Rehearsal is the repeated recitation of an item (Sternberg, 1996).

Every time an item is rehearsed, it is supposed to be committed into a relatively permanent long term store. However, if the item does not reach a long term memory representation and leaves short term store, it will be lost forever since new information will always be coming in, and push out old information from the limited short term store. (Anderson, 1995).

C) Long term memory:(LTM)

Long term memory mainly represents the amounts of information that are stored for considerable periods of time, sometimes indefinitely. (Baddeley, 1998).

Remembering your own name, how to speak, where you lived as a child are all supposed to belong to the long term storage. In other words, it is about our previous knowledge. Short term store depends mainly on an acoustic code, where as information in the long term store appears to be basically

semantically encoded, this does not reject the fact that obviously we can keep both visual images and acoustic information in our long term memory (Sternberg, 1996).

In 1995, William Bousfield presented subjects with different word categories, but in random order, so that, members of the various categories were thoroughly intermixed. Then, subjects were asked to perform a free recall. The subjects recalled successive words from the same category more frequently than would be expected by chance.

Thus it seems that subjects were remembering words by grouping them into categories (Baddeley, 1998).

Visual or verbal:

Fergus Graik and Robert Lockhart (1972) speculated that the quantity of Data kept in long term store depends on how deeply it is processed during learning. This for instance meant that written words are first processed purely in terms of their visual characteristics, then these words are transferred into an acoustic representation, and that these subsequently need the appropriate semantic feature. Processing the word in terms of its meaning requires a more profound, thus creating a richer and more durable memory trace (Baddeley, 1998). This does not mean that only meaning is stored, otherwise we could not learn how to talk. For example learning a word through using a tachistoscope enables a learner to look at the shape of the word before transferring it into the semantic memory.

To sum up, information that is encoded in terms of a rich and detailed representation of the word is likely to be more accessible than material that is processed in terms of a simple scheme.

Storage and forgetting in long term memory

Long term store contains huge amounts of information that we need to function in our daily life.

We have seen how data is encoded, but what about its storage?

Rehearsal, is one of the various ways which facilitates information transfer, from short term store to long term store. If you elaborate the items, in a way that

makes them more meaningful to you, you will make them more memorable, because passive rehearsal will not improve memory.

What do we mean by elaborative and meaningful processing ?

This involves embellishing the item to be remembered with additional information (Anderson, 1995).

A concrete evidence of this factor comes from the 1969 experiments of Bobrow and Bower (in Anderson, 1995).

These investigators, asked subjects to process simple subject - verb - object sentence.

There were two conditions of interest. In condition one; subjects were given sentences written by the experimenters. In condition two, subjects were asked to generate their own sentences. After examining the different sentences, subjects prompted with the first noun and were required to recall the second .the result obtained in the experiment, showed that, in generating their own sentences, subjects had to think and concentrate more carefully about the meaning of the two nouns and their possible interrelationship.

3) Organizing:

Long term memory, is capable of storing, huge amounts of information, but this information must be accessible, this means that it needs data to be organised.

The process of organisation seems to be a crucial one, and the reason why it is so important is that, unless information is stored in an orderly and systematic way, it

will not be accessible at the appropriate time. I.e. remembered with difficulties or completely forgotten.

The experiment which is conducted in 1969 by a group of psychologists mainly Bower, Clark, Lesgold and Winzenz, those who demonstrated the importance of organisation of memory and asked subjects to remember two lists of words. The test organised the words hierarchically and did not recall them intermixed. (Baddeley, 1998).

There is another useful organisation of the material which involves instructing the subjects to think of their proper personal organisation in a particular way, such as a story, because linking words in a story makes them more memorable. Visual imagery is one of the most frequently used techniques for organising material; let's make this point clearer. Imagine that you were trying to link two unrelated words like rabbit and steeple i.e. you remember one of them if you are provided with the other. For example a rabbit clinging to the top of a steeple. Having created an interactive image you will find that if you are given one word of the pair the other will pop up too (Baddeley, 1998).

Information can also be organised in another form in memory.

In addition to episodic memory studies also divided memory into semantic memory; which is a set of meanings which include reference, sense relations and concept formation. It is a kind of declarative knowledge. It reflects our general world knowledge. It consists of our memory facts that are not unique to us and that are not recalled in any particular temporal context (Tulving, 1972) in (Sternberg, 1996).

1.3- Working memory:

Working memory, is regarded as a specialised part of long term memory.

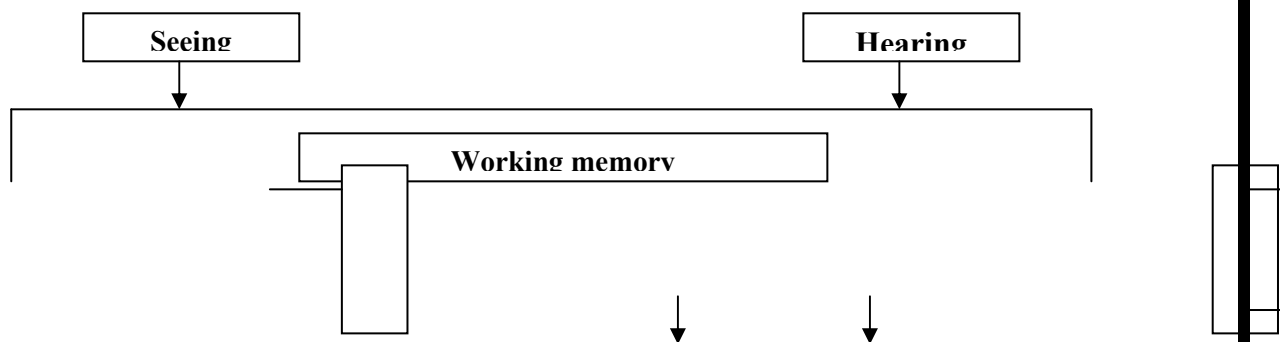
Working memory, holds only the most recently activated elements into and out of short term memory (Sternberg, 1996).

According to (Baddeley, 1998) working memory is « a system for temporarily holding and manipulating information as part of wide range of essential cognitive tasks such as learning reasoning and comprehending ».

Graham Hitch and Alan Baddeley (1970) argued that working memory seemed to be a flexible, and complex system; therefore they decided that in order to study the system in a free way, the best strategy would be to isolate the system components. They supposed the existence of a core system, a system that controls all the sub-components, and they named it a "central executive".

This key component, was as it was assumed, helped by other subsystems or slave systems, thereby seeing a portion of its own capacity for performing various information processing tasks (Baddeley and Hitch, 1974).

The presentation and the discussion of Baddeley's model would be done on the basis of the structure recalled in the figure bellow.



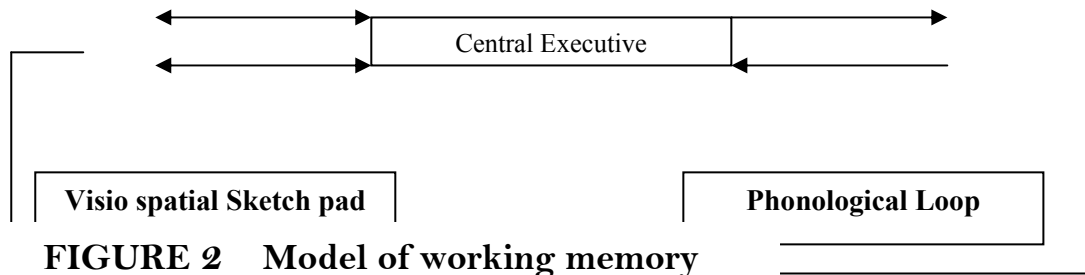


FIGURE 2 Model of working memory

1) -3 - a A new model for working memory:

A) The phonological loop:

This system involves phonological short - term - store and a rehearsal process.

Speech inputs go directly into the phonological store, while non-speech inputs go into the sub vocal rehearsal process, which is used to restore decaying information in the phonological store, and to change non-speech inputs such as drawing pictures, into their phonological form.

It appears to exist for helping phonological long term learning as in the case of acquiring new words in both one's native and foreign language.

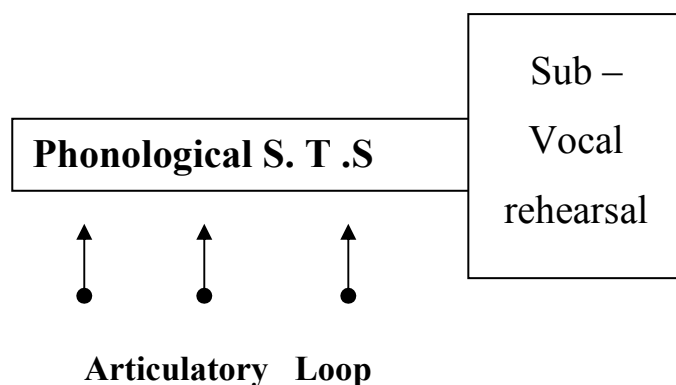


FIGURE 3

b) The visio - spatial sketchpad:

It is a system for maintaining and manipulating visual images.

Baddeley and other proposed that we can use what he called the visio-spatial ketch pad for rehearsing images, the argued that this mechanism is also used for keeping information in working memory.(Baddely.1998).

They also suggested that the role of the visio spatial sketchpad in working memory includes:

Providing temporary storage of visual and spatial information.

Refreshing images in the sketchpad as needed.

Generating images

Conclusion :

Learning, depends upon inputs. Each word you read and each sight you see-changes your memory in some way.

Memory is very important because of its role shown in the interpretation and the placement of inputs.

Memory must decide what is worth keeping by determining what meaning of an input is, and where it fits in relation to previous knowledge it has already stored.

Chapter : 02 Learning

2 - Introduction

2.1 Theories of learning

2.1.1 Behaviourism

2.1.2 Cognitivism

2.1.3 Constructivism

2. 2 Learning strategies

2.2.1 Metacognitive

2.2.2 Affective

2.2.3 Social

2. 3 Conclusion; what successful language learners do?

2.3.1 Memory, and its relation to learning

2.3.2 Conclusion

Chapter 02:

Learning

2 - Introduction:

Learning is an intake of knowledge, which needs to a change in behaviour.

In other words, « Learning is a relatively persistent change in an individual's potential behaviour due to experience. So, learning must first change the individual in some way ; second that this change comes about as a result of experience; and third, that is a change in his / her potential behaviour».(Fontana, 1995) .

The use of specific strategies, which defines as methods and / or techniques enable learners to make possible comprehension, acquisition, retention, retrieval, and whenever, needs arise, the application of information (Hedge, 2001).

2.1- theories of learning:

There are three main categories or philosophical frameworks under which

Learning theories fall. Behaviourism, cognitivism, and constructivism

A) Behaviourism:

Focuses only on the objectively observable aspects of learning. Behaviourism, as a theory was primarily developed by B.F. Skinner . It is concerned with the work of people like Thorndike, Tolman, Guthrie, and Hull who believed that . learning is manifested by a change in behaviour.

Second, the environment shapes behaviour.

Third, the principles of contiguity and reinforcement are central to explaining the learning process.

Classical conditioning :

Where the behaviour becomes a reflex response to stimulus as in the case of Pavlov's dogs. Pavlov was interested in studying reflexes, when he saw that the dogs salivated without the proper stimulus. Although no food was in sight, their saliva still dribbled. It turned out that the dogs were reacting to lab coats. Every time the dogs were served food, the person who served the food was wearing a lab coats. Therefore, the dogs reacted as if food was on its way whenever they saw a lab coat.

In a series of experiments, Pavlov then tried to figure out how these phenomena were linked. For example, he struck a bell when the dogs were fed. If the bell was sounded in close association with their meal, the dogs learned to associate the sound of the bell with food. After a while, at the mere sound of the bell, they responded by drooling.

2 - Operant conditioning :

Where there is reinforcement of the behaviour by a reward or a punishment. This theory Was developed by Skinner and it is known as Radical Behaviourism. Behaviourism may result either in reinforcement, which increases the likelihood of the behaviour recurring .It is important to note that, a punishment is not considered applicable if it does not result in the reduction of the behaviour. Therefore, the terms punishment and reinforcement are determined as a result of the actions. Within this fame work, behaviourists are particularly interested in measurable changes in Behaviour.

B) Cognitivism :

There are two key assumptions underlie this cognitive approach:

- 1) That memory system is an active organized processor of information.
- 2) That prior knowledge plays an important role in learning. Cognitivists consider how human

Memory works to promote learning. For example, the psychological processes of storing and encoding information and events into short term memory and long term memory are important to educators working under the cognitive theory. Once memory theories like the Atkinson-Shiffin memory model and Baddeley's working memory model were established as a theoretical frame work in cognitive psychology, New cognitive frame work of learning began to emerge during the 1970s, 80 s and 90 s .

C) Constructivism :

Constructivism views learning as a process in which the learner actively constructs new ideas based upon current and past knowledge. Constructivist learning

therefore is a very personal endeavour, where by internalized concepts, rules, and general principles may consequently be applied in a particular real world context. This is also known as social constructivism.

2. 2 – Learning Strategies :

Learning Strategies are techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content areas information. (Wenden, 1987:6).

Oxford (1990) considers that "any specific action taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" is a language learning strategy.

Oxford (1990) divides strategies into two major types: Direct and indirect. She defines direct strategies as those requiring mental processing of the language. However, the three groups that compose direct strategies do this processing differently and for different purposes. For example, memory strategies, such as grouping or using imagery, have a highly specific function, which is to help students store and retrieve new information.

Cognitive strategies however, such as summarizing or reasoning deductively, enable learners to understand, and produce new language using many different means such as condensation a whole text permit the learner to learn and grasp huge amount of information in a short period.

Finally compensation strategies like guessing or using synonyms, allow learners to use the language despite their often-large gaps in knowledge. For example using

this strategy such as guessing allows the learner to learn a large amount of words and keep them in his mind during a long period.

The second group of strategies discussed by (Oxford, 1990) is indirect Strategies. These are called "indirect" because they support and manage language learning without directly involving the target language they are divided into metacognitive, affective and social strategies.

A) Metacognitive strategies:

Metacognitive strategies, like cantering your learning, evaluating and monitoring are " actions which go beyond purely cognitive devices, and which provide a way for learners to coordinate their own learning process (Oxford, 1990)

B) Affective strategies :

Affective strategies, however, such as lowering your anxiety, encouraging yourself, and taking your emotional temperature deal with emotion, motivations, and values.

C) Social strategies:

Social strategies, like asking questions cooperating peers and proficient users of the target language and empathizing with others.

2.3 – What successful language learners do?

Outside of the language-learning field, research-comparing experts to novices indicate that experts use more systematic and useful problem solving and native-language reading comprehension strategies.

A similar finding occurs with more successful language learners as compared to less successful ones.

Butter language learners generally use strategies appropriate to their own stage of learning, personality, age , purpose for learning the language and types of language, (Oxford and Nyikos, 1989).(Ellis, 1994) summarized the results of various " good language learner studies" into five major aspects of successful language learning.

The first aspect of successful language learning is a concern for language form.

Researchers, found that good language learners treat language as a system by making effective cross lingual comparison, analyzing the target language, and using reference books.

Good language learners also pay attention to meaning, searching for it in the second

Language data they are exposed to and trying to engage in real communication by seeking out opportunities for natural language use. For example, the learner would like to engage in learning a foreign language using sometimes words from his mother tongue to learn and grasp the real meaning of that foreign word.

Thirdly; good language learners show active involvement in language learning.

Rather than developing dependence upon the teacher, they take charge of their own learning by identifying and pursuing goals and by trying to introduce new topics into conversations.

The fourth characteristic concerned their met cognitive awareness of the learning process.

Successful foreign language learners are thoughtful and aware of themselves, make conscious decisions and follow their own preferred learning style.

These learners have the ability to talk effectively about their language learning because they have a well-developed meta language with which to do it.

Finally, Ellis concluded that successful learners are flexible and appropriately use learning strategies, demonstrating the ability to choose those that were appropriate for particular tasks.

O'Malley and Chamot (1990) also undertook investigations comparing effective and ineffective students in their use of language learning strategies.

More effective students used a greater variety of strategies in all the strategy groups, and used them in ways that helped the students complete the language task successfully.

Less effective students not only had fewer strategy types in their repertoires, but also frequently used strategies that were inappropriate to the task or that did not lead to successful task completion.

3) Memory and its relation to learning:

According to (Gregg, 1975) "learning is putting an information into the memory store, while memory tends to be considered with retention and retrieval".

The brain is the organ, which is responsible for the mind. It is the basic for thinking. Feeling, wanting, perceiving, learning and memory, curiosity and behaviour.

Memory is a fundamental mental process thus, learning and memory is one the most intensively studied subjects in the field of neuroscience. Many approaches have been used to understand the mechanisms underlying this process.

In this session, T. Hirance and E, Balaban presented their original approaches toward understanding memory and learning.

Memory is a behavioural change caused by an experience, and learning is a process for acquiring memory.

According to these definitions, there are different kinds of memory.

Some memory, such as those concerning events and facts, are available to our consciousness, this type of memory is called »declarative memory " . However, another type of memory, which is called procedural memory, is not available to consciousness. This is the memory that is needed. For example, to use a previously learned skill. We can improve our skills through practice with training, the ability to play tennis, for example, will improve.

Declarative memory and procedural memory are independent.

Because of this fact, neuroscientists believe that there must be separate mechanisms for each type of memory, that probably also require separates brain areas as well.

I n any case, neuroscientists think that memory must require alterations to occur the brain.

The most popular candidate site for memory storage is the synapse, where nerve cells communicate (Kandel ER, 1991).

In other words, a change in transmission efficacy at the synapse has been considered to be the cause of memory.

A particular pattern of synaptic usage or stimulation is believed to induce synaptic plasticity.

Learning does not only involve changes in synaptic efficacy resulting from the convergence of several kinds of concurrent environmental stimulation.

Chapter: 03

3/ Experimentation

4 / Discussion of the results

5 /Bibliography

EXPERIMENTATION

This experimental work carried out at Mentoury's university in Constantine, department of English, with students of 3rd year LMD option; language sciences. Three groups were asked to perform the experiment each group is composed of ten students, and they have selected randomly. Their approximate age ranges from 20 to 24 years of age. They were taken from a part of population from both sexes.

In this test, our objective is not to classify students and to determine who is the best in memorizing and/or learning, but to collect enough data in order to study the relationship that might exist between memory and learning.

Students who participate in this experiment were asked to read carefully a short passage from a novel written by Boris Pasternak entitled "Doctor Jivako."

The first group, was given a full explanation about the context during which this novel was written, and the second group has received a quick summary of the

passage, where as the control group has received no explanation about this passage. Subjects were asked to answer the questions as quickly as they can, and the time during which they were supposed to reply, was recorded by the instructor.

The statistical procedure that has been chosen for this experiment is " Test" for independent group design.

The reason that lies behind this choice is to detect whether or not there is a significant difference between the controls, and the other two-experiment groups.

The data gathered for this experiment were as follows.

<u><i>Control group</i></u>		<u><i>Experiment group1</i></u>	
<i>(Receiving no explanation)</i>		<i>(Receiving explanation)</i>	
S₁	2.43	S₁	2.22
S₂	2.24	S₂	2.44
S₃	2.25	S₃	2.45
S₄	2.25	S₄	2.46
S₅	2.27	S₅	2.47
S₆	2.28	S₆	2.48
S₇	2.28	S₇	2.48
S₈	2.29	S₈	2.49

S₉ 2.30

S₉ 2.50

S₁₀ 2.30

S₁₀ 2.53

Experiment group2

(Receiving a summary)

S₁ 2.35

S₂ 2.35

S₃ 2.36

S₄ 2.37

S₅ 2.38

S₆ 2.39

S₇ 2.40

S₈ 2.41

S₉ 2.42

S₁₀ 2.43

T-test is a statistical procedure, which enables us to see whether there is a significant difference between the control group, and the experimentals.

Computation

The text that was used for this experiment was as follows:

But Yury did not get typhus until much later .In the mean-time, the Zhivagos were tried to the limits of endurance .They had noting and they were starving .Yury, wept to see the party member he had once saved ,the one who had been the victim of a robbery. This man, helped him as far as he could, but the civil war was beginning and he was hardly ever in Moscow; besides, in keeping with his principles, he looked upon the difficulties of those days as natural, concealed the fact that he himself went hungry.

Questions

1-How the hero manages to escape from this booby trap ?

2-What do you know about this revolution?

3-Did it bring much benefit for the Russian people or not?

After reading this passage, and answering the questions, the instructor has found the following results, which come from recording time.

<i>CG</i>		<i>EXG1</i>		<i>EXG2</i>	
S₁	2.43	S₁	2.22	S₁	2.35
S₂	2.44	S₂	2.24	S₂	2.35
S₃	2.45	S₃	2.25	S₃	2.36
S₄	2.46	S₄	2.25	S₄	2.37
S₅	2.48	S₅	2.27	S₅	2.38
S₆	2.50	S₅	2.28	S₅	2.39
S₇	2.53	S₅	2.28	S₅	2.40

S₈	2.55	S₅	2.29	S₅	2.41
S₉	2.57	S₅	2.30	S₅	2.42
S₁₀	2.58	S₅	2.32	S₅	2.43

The formula of the t-test is as follows:

$$T(N_1 + N_2 - 2) = \frac{(\bar{x}_1 - \bar{x}_2) \sqrt{(N_1 + N_2 - 2) N_1 N_2}}{\sqrt{(N_1 - 1)S_1^2 + (N_2 - 1)S_2^2} \sqrt{(N_1 + N_2)}}$$

N_1 : stands for the number of subjects in the control group : G V

N_2 : stands for the number of subjects in the experimental group : G V₂

\bar{X}_1 Stands for the mean of the control group; G V₁

\bar{X}_2 Stands for the mean of the experimental

S_1 : stands for the number of subjects in the experimental group: G V₁

S_2 : stands for the number of subjects in the experimental group: G V₂

The Computation

<u><i>CG</i></u>				<u><i>EG1</i></u>			
<i>(Receiving no explanation)</i>				<i>(Receiving a full explanation)</i>			
₁S	2.43	₁S²	5.90	₁S	2.35	₁S²	5.52
₂S	2.44	₂S²	5.95	₂S	2.35	₂S²	5.52
₃S	2.45	₃S²	6.00	₃S	2.36	₃S²	5.56

${}_4S$	2.46	${}_4S^2$	6.05	${}_4S$	2.37	${}_4S^2$	5.61
${}_5S$	2.48	${}_5S^2$	6.15	${}_5S$	2.38	${}_5S^2$	5.66
${}_6S$	2.50	${}_6S^2$	6.25	${}_6S$	2.39	${}_6S^2$	5.71
${}_7S$	2.53	${}_7S^2$	6.40	${}_7S$	2.40	${}_7S^2$	5.76
${}_8S$	2.55	${}_8S^2$	6.50	${}_8S$	2.41	${}_8S^2$	5.80
${}_9S$	2.57	${}_9S^2$	6.60	${}_9S$	2.42	${}_9S^2$	5.85
${}_{10}S$	2.58	${}_{10}S^2$	6.65	${}_{10}S$	2.43	${}_{10}S^2$	5.95

$$\Sigma X^1 = 24.99, N^1 = 10$$

$$X_1 = 24.99/10 \Rightarrow X_1 = 2.49$$

$$\Sigma X_{12} = 389.40$$

$$X_{12} = (\Sigma x_1)^2 / N^2 = (24.99)^2 / 10^2$$

$$X_1^2 = 6.20$$

$$S_1^2 = \Sigma x_1^2 / N - X$$

$$S_1^2 = 32.74 \quad \Sigma X_1^2 = 51.49$$

$$\Sigma X_2 = 22.7 \Rightarrow x_2 = 22.7/10 \Rightarrow X_2 = 2.27$$

$$2S^2 = \Sigma x_2^2 / 2^N - x_2^2$$

$$2S^2 = 51.53 / 10 - 5.51 \quad 2S^2 = 0$$

$$T(N_1 + N_2 - 2) = \frac{(6.20 - 2.27)^2}{(18)(100)}$$

$$\sqrt{(10.32, 74)}$$

$$T(N_1+N_2-2) = 2.06$$

T is more than the CV (1.81)=> it is significant.

1S	2.43	1S²	5.90	1S	2.22	1S²	4.92
2S	2.44	2S²	5.95	2S	2.24	2S²	5.01
3S	2.45	3S²	6.00	3S	2.25	3S²	5.06
4S	2.46	4S²	6.05	4S	2.25	4S²	5.06
5S	2.48	5S²	6.15	5S	2.27	5S²	5.15
6S	2.50	6S²	6.25	6S	2.28	6S²	5.19
7S	2.53	7S²	6.40	7S	2.28	7S²	5.19
8S	2.55	8S²	6.50	8S	2.29	8S²	5.24
9S	2.57	9S²	6.60	9S	2.30	9S²	5.29
10S	2.58	10S²	6.65	10S	2.32	10S²	5.29

$$\Sigma X_1=24.99, \quad N_1=10$$

$$X_1=2.49$$

$$\Sigma X_1^2 = 389.4$$

$$X_1^2 = 6.20$$

$$S_1^2 = 32.74$$

$$\sum X_2^2 = 56.94, N=10$$

$$\sum X_2 = 23.86, X_2 = 23.86 / 10 \Rightarrow X_2 = 2.38$$

$$2S^2 = \sum x_2^2 / N_2 - X_2^2 = 56.94 / 10 - (2.38)^2$$

$$2S^2 = 0.02$$

$$T(N_1 + N_2) = \frac{(x_1 - x_2) \sqrt{(N_1 + N_2 - 2) N_1 N_2}}{\sqrt{(N_1 S_1^2 + N_2 S_2^2) (N_1 + N_2)}}$$

$$T(N_1 + N_2) = \frac{(2.49 - 2.38) \sqrt{(18)(100)}}{\sqrt{(10 \cdot 32,74)(20)}}$$

$$T(N_1 + N_2) = 2.00$$

This result is more than the CV (1.81) it is significant

Discussion of the results

After carrying out the arithmetical computation the following value emerges from it, which: 2, 6.

The critical value for this test is 1,81 which means that the experimental and the controls differ largely in their performance under the two treatments, i.e. the controls receive no explanation, whatsoever, and were asked to answer the questions without any intervention from the part of the instructor.

The experimental, however, receive further explanation, before the start of the experiment in order to make them even more ready to grasp and understand the core idea of the text, and to see the extent to which they can manage to manipulate different concepts of the text without encountering difficulties.

The result of the second experiment (2, 00, c v = 1, 81) is in general support of the first experiment.

It also supports our hypothesis, which states that if learners deploy strategies and receive explanations this will make their memory very well structured, and the incoming information will settle in it in an efficient way and without encountering any difficulty whatsoever.

This indicates also, that if learners were allowed to use strategies and receive further explanation /summary, before the lecture then they will perform a task without any difficulty.

Further more, the difference between the controls and the experiments was found significant because the subjects attention was not attracted by extraneous variables ie no extra noise is coming from the outside in other words the room was completely isolated from all the possible disturbances.

This has enabled the instructor to carry out a more efficient experiment, and it is for this reasons that our hypothesis has been verified and supports largely our experiment.

General Conclusion

So, to sum up; memory has been used to describe the activities of acquiring, retaining, and recalling in order to improve the quality and quantity of what we learn.

In addition to that, memory is regarded as a place, located in the head, where recoverable experience and knowledge are housed which is considered as a very important component of learning, and in order to make sure learning has taken place we must rely on a person's ability to remember something by either mental or physical means; that is why the relation between memory and learning is very crucial.

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Résumé

Comprendre une information n'est pas une chose facile , pour cela, il est nécessaire de déployer une stratégie efficace afin de tirer le maximum d'information ,en pensant d'abord intelligemment, car l'intelligence est une base fondamentale pour procéder un développement de la mémoire.

Cette recherche nous montre comment on peut garder les connaissances et les informations dans nos mémoires,et d'acquérir les mots qu'on utilisera lorsque c'est nécessaire et les introduire dans les différents types de mémoires et pouvoir les changer à chaque fois avec le sens de la phrase .

En plus on montre la relation intime entre la mémoire et la compréhension .

ملخص

إن عملية فهم المعلومة و تخزينها تم استرجاعها عند الضرورة
ليس بأمر هين ، لهذا السبب على المتعلمين أن يعتمدوا
في تعليمهم على طرق و استراتيجيات فعالة التي بدورها تمكنهم
من التعلم و اكتساب المعرفة بذكاء بالإضافة على أنها
تساعدهم في تطوير و تنمية تعلمهم.

من خلال هذه الأطروحة سأبين كيف على المتعلم أن يحتفظ و يخزن كل ما يكتسبه في ذاكرته و كيف يسترده حينما ينبغي و وقت ما يريد مع تبيان مختلف أجزاء الذاكرة. بالإضافة إلى هذا، العلاقة الحتمية التي تربط كلامن الذاكرة و التعلم، دون أن ننسى أنه لا تعلم من دون ذاكرة، لأن أساس التعلم هو الذاكرة.

Appendix

But Yury did not get typhus until much later .In the mean-time, the Zhivagos were tried to the limits of endurance .They had noting and they were starving .Yury, webt to see the party member he had once saved ,the one who had been the victim of a robbery. This man, helped him as far as he could, but the civil war was beginning and he was hardly ever in Moscow; besides, in keeping with his principles, he looked upon the difficulties of those days as natural, concealed the fact that he himself went hungry.

Questions

- 1-How the hero manages to escape from this booby trop?
- 2-What do you know about this revolution?
- 3-Did it bring much benefit for the Russian people or not?

Abstract

Our objective in this study is to show how learners can retain and recover information about previous knowledge through the function of memory, and how learners can acquire new words. In addition to that the relation between learning and memory

Since the problem we are faced with concerns the relationship between memory and learning.

In this study, we will assume that there is a relationship between memory and learning, and that Algerian students at the department of English in Constantine who have a good memory have higher learning scores.

For this purpose, we used in our experiment three groups of the same instructional level. I.e experimental group one, who received an explanation about a short passage from a novel written by Boris Pasternak. Experimental group two, who received summary, and control group, who received neither explanation nor summary, and I have used T test, which show us the crucial relationship between memory and learning.

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A/General overview

A/1 Statement of the problem

A/2 The aim of the study

A/3 The hypothesis

A/4 Tool of the research

A/5 the structure of the study

General overview :

Learning, how to learn a language is not an easy task.

To achieve this objective the learner should know how to restructure his memory in order to allow the information to settle into it (memory) in a more efficient way .

This can occur if he/she deploys strategies that enable him/her to pursue effectively three processes at the same time, which are: storing, encoding and retrieving (recalling).

Storing: means keeping the information into memory during an interval of time.

Encoding: means putting the information into memory.

Recalling: means trying to retrieve that information from medium term memory or long-term memory for probable use.....

1.1 Statement of the problem :

Most of learners have a notion that memory is simply a ware house, where they keep their knowledge when they are not using it.

This warehouse notion implies that learning is the storing of memory with uninterrupted knowledge.

The corresponding notion of remembering implies that when we need a piece of knowledge, we go into memory, and pull it off the shelves. The problem we are confronted within this research is the relationship between memory and learning. First, we need to explain the term memory, and then the importance of memory in the field of learning.

1.2 The aim of the study :

This study is aiming to show how learners can retain and recover information about previous experiences, and knowledge through the function of memory, and how can learners acquire new words .

In addition to that, it attempts to clarify the relationship between learning and memory, and how can learners remember experiences and knowledge in an effective ways.

1.3 The hypothesis :

We hypothesize that: if learners deploy efficient strategies, and if their memory is very well structured then the incoming information will settle in it in an efficient way.

1.4 Tool of the research:

In the present research, we have chosen to use an experimental design with control group and two experimental groups. The statistical test which are appropriate for such design are the parametric statistical tests of analysis of variance,ie T test. The reasons behind this choice for an experimental design are

A large number of groups.

4- This technique allows us to investigate the variances between and within groups.

5- Because it is a powerful test which can allow us to investigate whether or not there is a

Significant difference between more than 03 groups.

6- T test also has been used in this research because we want to investigate the difference between

two independent groups ie the controls and the experimentals .

<i>Control Group</i> <i>(receiving no explanation)</i>	<i>Experiment group 1</i> <i>(receiving explanation)</i>	<i>Experiment group 2</i> <i>(receiving a summary)</i>
S₁	S₁	S₁
S₂	S₂	S₂
S₃	S₃	S₃
S₄	S₄	S₄
S₅	S₅	S₅
S₆	S₆	S₆
S₇	S₇	S₇
S₈	S₈	S₈
S₉	S₉	S₉
S₁₀	S₁₀	S₁₀

1.5 The structure of the study :

The present research is basically divided into three main chapters.

Chapter one :

It is devoted to the literature review, ie, it includes many notions about memory, types of memory, how memory changes, the importance of memory

Chapter two:

It is concerned with learning, its definition, its strategies, its theories and its relationship to memory.

Finally, the conclusion that includes the role of memory in the field of learning and some recommendations.

Chapter three:

It includes the results that come after the experimentation that was carried out at the University of Constantine, department of English to confirm our hypothesis stated at the beginning of this research, which says: if learners deploy efficient strategies, and if their memory is very well structured, then the incoming information will settle in it in an efficient way.

Finally, the conclusion that includes the role of memory in the field of learning and some recommendations.

Chapter: 01 Memory

1 - Introduction

1.1 The memory components

1.1.1 The short term store

1.1.2 The long term store

1.1.3 Semantic memory

1.2 Spread or depth encoding

1.2.1 The encoding specificity

1.2.2 Processing strategies

1.2.3 Elaborative rehearsal

1.2.4 Maintenance rehearsal

1.2.5 Information retrieval

1.3 The Three stages view of memory

1.3.1 Sensory memory

1.3.2 Short term memory

1.3.3 long term memory

1.4 Working memory

1.4.1 A new model for working memory

1.4.2 Conclusion

Chapter 01

Memory

1.1- Introduction :

Memory is the ability to retain information or to recover it about previous experiences. As for example when we remember something, a process takes place in which our mind recover and reconstruct information about things we have done or learned.

Additionally, there are multiple types of classification for memory, based on duration, nature and retrieval of perceived items.

1.2- The memory component:

C) – The short term store (s t s) :

Which stores information for short period of time, but it is also of a relatively limited capacity. The length of time information remains in the short term store depends on whether it undergoes rehearsal or not. For example when the learner grasps the meaning of a concept for the first time that information will settle for a while in short term memory, then it is going to be removed to an other area of memory whether in middle term memory or long term memory.

D) – The long term store:(LT S)

Which has a large information capacity. It is capable of storing information for a very long period of time. The long term store is supposed to be of an unlimited, storage system.

The information will settle in long term memory until the learner will recover it for probable use after using strategies such as rehearsal.

In addition to long term store and short term store, our brains also seem to have different overlapping systems for the primary types of memories.

B -1 Declarative memory and procedural memory :

This can be shown in the following figure .

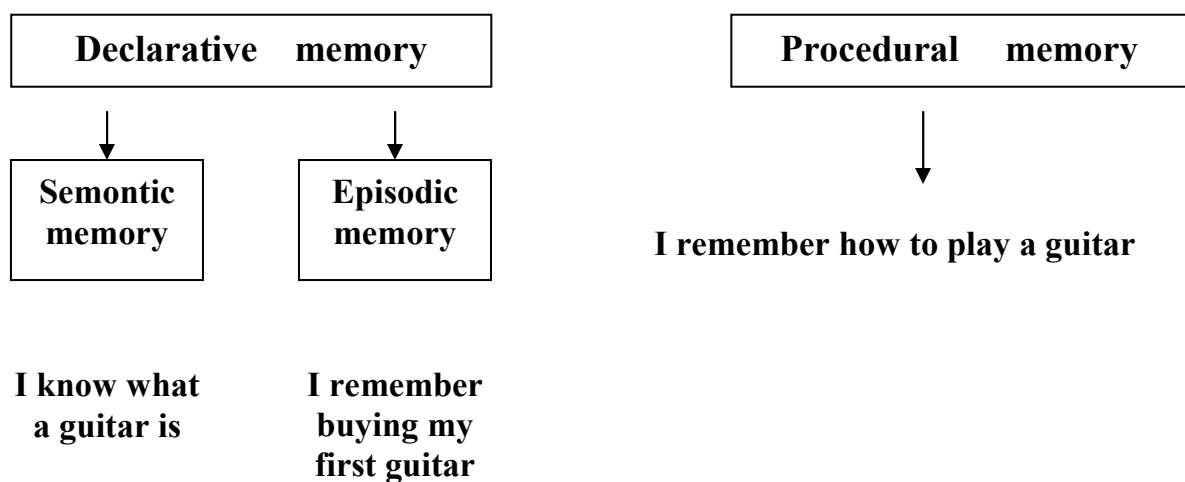


Figure 01 : Declarative and procedural knowledge

Explicit memories also called declarative memories and Implicit memory also called procedural memory.

Declarative memory can be of two types:

C) -Semantic memory :

Is the organised knowledge about the world. It contains all the learning that we have accumulated throughout our lives.

Non declarative (or procedural memory) :

Tulving argues saying that procedural knowledge is the first system to develop during infancy, followed by Semantic knowledge, (wikipedia, 2004).

1.2 – a) Spread or depth of encoding:

Graik and Tulving in 1975 proposed that it might be more appropriate to talk of a spread of encoding than some continuous hierarchical set of analyses conducted on information.

A) The encoding specificity:

The encoding principles of memory (Tulving and Thomson, 1973) provide a general theoretical frame work for understanding how contextual information affects memory.

Specifically the principle states that memory is improved when information available at encoding is also available at retrieval.

B) Processing strategies:

Graik and Lockhart (1972) suggested that rehearsal is an important strategy which matters most in the field of learning?

Memory can be largely improved if information is rehearsed in a deep and meaningful way, especially if rehearsal is the main method for transferring items from short term memory to long term memory .

C) Elaborative rehearsal:

It is a strategy which was proposed by Graik and Lockhart in (1972) which involves deep semantic processing of a given item to be remembered which results in the production of durable memories. It also helps the learner to retain the

information during long period of time in his long term memory. As an example an item rehearsed during the first year of the primary school remains live even when the person becomes an adult.

D) Maintenance rehearsal:

It involves rote repetition of an item, in contrast to elaborative rehearsal, this type does not lead to stronger or more durable memories. It keeps the information in an immediate memory only.

E) Information retrieval:

To complete the memory model, we need to address the issue of information retrieval.

When we try to remember something we naturally attempt to generate retrieval cues.

This means that our efforts focussed on how to re-establish the context in which we learn something.

The work of (Thomson and Tulving, 1970.73) and (Fisher and Graik in 1977) gave asupport for the idea that recall is facilitated by retrieval cues that are suitable with the encoding context .

One of the most important notions that have been advanced out of the levels of processing research is "intentionality"; ie whether or not when someone tries to remember something that he has to do with what is remembered.

Some experiments, have reported better recall of words under intentional conditions.

compared to incidental memory conditions, two experiments conducted by Gross and Monters in 1985 .As for example revealed that informed subjects elaborated a memory trace to include attributes that were likely to facilitate an anticipate recall task.

1.2 – b) *The three stages view of memory:*

A) *Sensory memory:*

In psychological research, scientists define a sensation as" a message that our brain receives from our senses" (Sternberg, 1996).

The sense in psychology, is considered as "a physical system, that collects information for the brain, from the external world, or from the internal world of the body, and then translates this information into a language that the brain understands" (Wikipedia, 2004). For example receives a slap on his skin that sense will be transferred immediately to memory after it has been translated in to a language that only memory can understand.

The sensory memory refers to initial recording of information in our sensory system. The information interpreted by the visual system is stored for less than one second in the iconic memory. It corresponds to the brief visual persistence of information for the auditory phenomenon. The information is stored in what is called the echoic memory.

All our sensory receptors provide data to our sensory store which sends it to short term store.

B) *Short term memory:(STM)*

In 1958 Broadbent was the first who anticipated the theory of short term memory.

In 1969 Waugh and Norman scientists, gave an influential formulation of the theory (Anderson, 1995). However, it was Atkinson and Schifrin who brought to the theory its most systematic development (Atkinson and Schifrin, 1968). Short term memory is an important component of memory stores. It keeps information from few seconds up to one minute or two. It has a limited information capacity. The short term store is fed by a series of sensory registers which are micro memories associated with perception.

So, to conclude short term memory acts as a controller feeding in new information and selecting particular processes for pulling information out of the long term memory.

Why do we forget ?

The technique we use to keep information in short term storage is rehearsal.

Rehearsal is the repeated recitation of an item (Sternberg, 1996).

Every time an item is rehearsed, it is supposed to be committed into a relatively permanent long term store. However, if the item does not reach a long term memory representation and leaves short term store, it will be lost forever since new information will always becoming in, and push out old information from the limited short term store. (Anderson, 1995).

C) Long term memory:(LTM)

Long term memory mainly represents the amounts of information that are stored for considerable periods of time, sometimes indefinitely. (Baddeley, 1998).

Remembering your own name, how to speak, where you lived as a child are all supposed to belong to the long term storage. In other words, it is about our previous knowledge. Short term store depends mainly on an acoustic code, where as information in the long term store appears to be basically

semantically encoded, this does not reject the fact that obviously we can keep both visual images and acoustic information in our long term memory (Sternberg, 1996).

In 1995, William Bousfield presented subjects with different word categories, but in random order, so that, members of the various categories were thoroughly intermixed. Then, subjects were asked to perform a free recall. The subjects recalled successive words from the same category more frequently than would be expected by chance.

Thus it seems that subjects were remembering words by grouping them into categories (Baddeley, 1998).

Visual or verbal:

Fergus Graik and Robert Lockhart (1972) speculated that the quantity of Data kept in long term store depends on how deeply it is processed during learning. This for instance meant that written words are first processed purely in terms of their visual characteristics, then these words are transferred into an acoustic representation, and that these subsequently need the appropriate semantic feature.

Processing the word in terms of its meaning requires a more profound, thus creating a richer and more durable memory trace (Baddeley, 1998). This does not mean that only meaning is stored, otherwise we could not learn how to talk. For example learning a word through using a tachistoscope enables a learner to look at the shape of the word before transferring it into the semantic memory.

To sum up, information that is encoded in terms of a rich and detailed representation of the word is likely to be more accessible than material that is processed in terms of a simple scheme.

Storage and forgetting in long term memory

Long term store contains huge amounts of information that we need to function in our daily life.

We have seen how data is encoded, but what about its storage?

Rehearsal, is one of the various ways which facilitates information transfer, from short term store to long term store. If you elaborate the items, in a way that makes them more meaningful to you, you will make them more rememberal, because passive rehearsal will not improve memory.

What do we mean by elaborative and meaningful processing ?

This involves embellishing the item to be remembered with additional information (Anderson, 1995).

A concrete evidence of this factor comes from the 1969 experiments of Bobrow and Bower (in Anderson, 1995).

These investigators, asked subjects to process simple subject - verb - object sentence.

There were two conditions of interest. In condition one; subjects were given sentences written by the experimenters. In condition two, subjects were asked to generate their own sentences. After examining the different sentences, subjects prompted with the first noun and were required to recall the second .the result obtained in the experiment, showed that, in generating their own sentences, subjects had to think and concentrate more carefully about the meaning of the two nouns and their possible interrelationship.

3) Organizing:

Long term memory, is capable of storing, huge amounts of information, but this information must be accessible, this means that it needs data to be organised.

The process of organisation seems to be a crucial one, and the reason why it is so important is that, unless information is stored in an orderly and systematic way, it will not be accessible at the appropriate time. I.e. remembered with difficulties or completely forgotten.

The experiment which is conducted in 1969 by a group of psychologists mainly Bower, Clark, Lesgold and Winzenz, those who demonstrated the importance of organisation of memory and asked subjects to remember two lists of words. The test organised the words hierarchically and did not recall them intermixed. (Buddely, 1998).

There is an other useful organisation of the material which involves instructing the subjects to think of their proper personal organisation in a particular way, such as

a story, because linking words in a story makes them more memorable. Visual imagery is one of the most frequently used techniques for organising material; let's make this point clearer. Imagine that you were trying to link two unrelated words like rabbit and steeple ie you remember one of them if you are provided with the other. For example a rabbit clinging to the top of a steeple. Having created an interactive image you will find that if you are given one word of the pair the other will pop up too (Baddeley, 1998).

Information can also be organised in another form in memory.

In addition to episodic memory studies also divided memory into semantic memory; which is a set of meanings which include reference, sense relations and concept formation. It is a kind of a declarative knowledge. It reflects our general world knowledge. It consists of our memory facts that are not unique to us and that are not recalled in any particular temporal context (Tulving, 1972) in (Sternberg, 1996).

1.3- Working memory:

Working memory, is regarded as a specialised part of long term memory.

Working memory, holds only the most recently activated elements into and out of short term memory (Sternberg, 1996).

According to (Baddeley, 1998) working memory is « a system for temporarily holding and manipulating information as part of wide range of essential cognitive tasks such as learning reasoning and comprehending ».

Graham Hitch and Alan Baddeley (1970) argued that working memory seemed to be a flexible, and complex system; therefore they decided that in order to study the

system in a free way, the best strategy would be to isolate the system components. They supposed the existence of a core system, a system that controls all the sub-components, and they named it a "central executive".

This key component, was as it was assumed, helped by other subsystems or slave systems, thereby seeing a portion of its own capacity for performing various information processing tasks (Baddeley and Hitch, 1974).

The presentation and the discussion of Baddeley's model would be done on the basis of the structure recalled in the figure bellow.

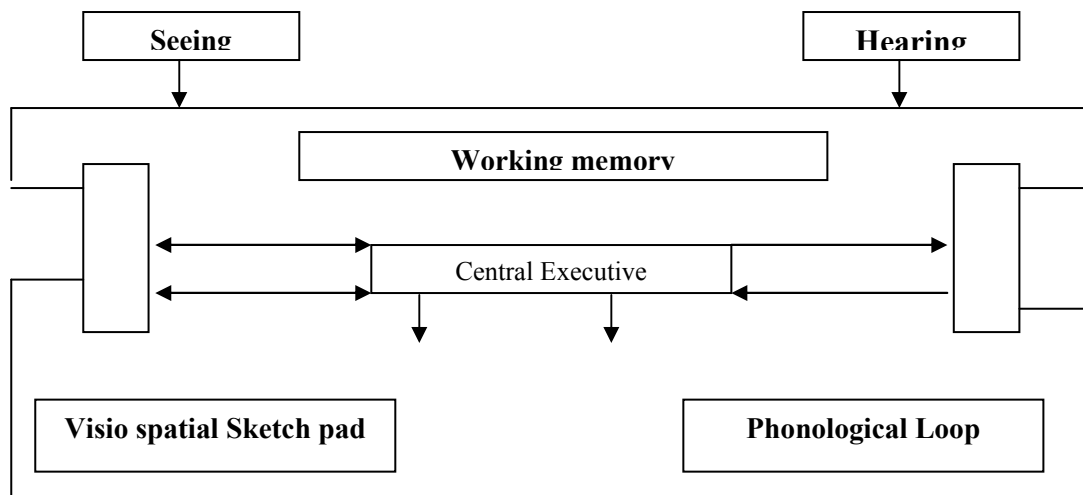


FIGURE 2 Model of working memory

1) -3 - a A new model for working memory:

A) The phonological loop:

This system involves phonological short - term - store and a rehearsal process.

Speech inputs go directly into the phonological store, while non-speech inputs go into the sub vocal rehearsal process, which is used to restore decaying information

in the phonological store, and to change non-speech inputs such as drawing pictures, into their phonological form.

It appears to exist for helping phonological long term learning as in the case of acquiring new words in both one's native and foreign language.

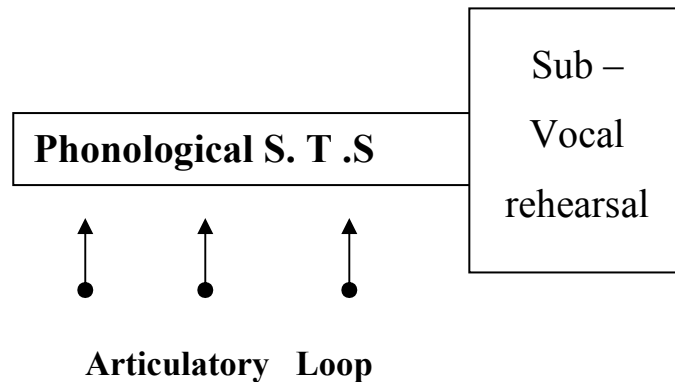


FIGURE 3

b) The visio – spatial sketchpad:

It is a system for maintaining and manipulating visual images.

Baddeley and other proposed that we can use what he called the visio-spatial sketch pad for rehearsing images, the argued that this mechanism is also used for keeping information in working memory.(Baddely.1998).

They also suggested that the role of the visio spatial sketchpad in working memory includes:

Providing temporary storage of visual and spatial information.

Refreshing images in the sketchpad as needed.

Generating images

Conclusion :

Learning, depends upon inputs. Each word you read and each sight you see changes your memory in some way.

Memory is very important because of its role shown in the interpretation and the placement of inputs.

Memory must decide what is worth keeping by determining what meaning of an input is, and where it fits in relation to previous knowledge it has already stored.

Chapter : 02 Learning

2 - Introduction

2.1 Theories of learning

2.1.1 Behaviourism

2.1.2 Cognitivism

2.1.3 Constructivism

2. 2 Learning strategies

2.2.1 Metacognitive

2.2.2 Affective

2.2.3 Social

2. 3 Conclusion; what successful language learners do?

2.3.1 Memory, and its relation to learning

2.3.2 Conclusion

Chapter 02:

Learning

2 - Introduction:

Learning is an intake of knowledge, which needs to a change in behaviour.

In other words, « Learning is a relatively persistent change in an individual's potential behaviour due to experience. So, learning must first change the individual in some way ; second that this change comes about as a result of experience; and third, that is a change in his / her potential behaviour». (Fontana, 1995) .

The use of specific strategies, which defines as methods and / or techniques enable learners to make possible comprehension, acquisition, retention, retrieval, and whenever, needs arise, the application of information (Hedge, 2001).

2.1- theories of learning:

There are three main categories or philosophical frameworks under which Learning theories fall. Behaviourism, cognitivism, and constructivism

A) Behaviourism:

Focuses only on the objectively observable aspects of learning. Behaviourism, as a theory was primarily developed by B.F. Skinner . It is concerned with the work of people like Thorndike, Tolman, Guthrie, and Hull who believed that . learning is manifested by a change in behaviour.

Second, the environment shapes behaviour.

Third, the principles of contiguity and reinforcement are central to explaining the learning process.

Classical conditioning :

Where the behaviour becomes a reflex response to stimulus as in the case of Pavlov's dogs. Pavlov was interested in studying reflexes, when he saw that the dogs salivated without the proper stimulus. Although no food was in sight, their saliva still dribbled. It turned out that the dogs were reacting to lab coats. Every time the dogs were served food, the person who served the food was wearing a lab coat. Therefore, the dogs reacted as if food was on its way whenever they saw a lab coat.

In a series of experiments, Pavlov then tried to figure out how these phenomena were linked. For example, he struck a bell when the dogs were fed. If the bell was sounded in close association with their meal, the dogs learned to associate the sound of the bell with food. After a while, at the mere sound of the bell, they responded by drooling.

2 – Operant conditioning :

Where there is reinforcement of the behaviour by a reward or a punishment. This theory was developed by Skinner and it is known as Radical Behaviourism. Behaviourism may result either in reinforcement, which increases the likelihood of the behaviour recurring. It is important to note that, a punishment is not considered applicable if it does not result in the reduction of the behaviour. Therefore, the terms punishment and reinforcement are determined as a result of the actions. Within this framework, behaviourists are particularly interested in measurable changes in Behaviour.

B) Cognitivism :

There are two key assumptions underlie this cognitive approach:

- 3) That memory system is an active organized processor of information.
- 4) That prior knowledge plays an important role in learning. Cognitivists consider how human

Memory works to promote learning. For example, the psychological processes of storing and encoding information and events into short term memory and long term memory are important to educators working under the cognitive theory. Once memory theories like the Atkinson-Shiffrin memory model and Baddeley's working memory model were established as a theoretical frame work in cognitive psychology, New cognitive frame work of learning began to emerge during the 1970s, 80s and 90s .

C) Constructivism :

Constructivism views learning as a process in which the learner actively constructs new ideas based upon current and past knowledge. Constructivist learning therefore is a very personal endeavour, where by internalized concepts, rules, and general principles may consequently be applied in a particular real world context. This is also known as social constructivism.

2.2 – Learning Strategies :

Learning Strategies are techniques, approaches or deliberate actions that students take in order to facilitate the learning and recall of both linguistic and content areas information. (Wenden, 1987:6).

Oxford (1990) considers that "any specific action taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations" is a language learning strategy.

Oxford (1990) divides strategies into two major types: Direct and indirect. She defines direct strategies as those requiring mental processing of the language. However, the three groups that compose direct strategies do this processing differently and for different purposes. For example, memory strategies, such as grouping or using imagery, have a highly specific function, which is to help students store and retrieve new information.

Cognitive strategies however, such as summarizing or reasoning deductively, enable learners to Understand, and produce new language using many different means such as condensation a whole text permit the learner to learn and grasp huge amount of information in a short period.

Finally compensation strategies like guessing or using synonyms, allow learners to use the language despite their often-large gaps in knowledge. For example using this strategy such as guessing allows the learner to learn a large amount of words and keep them in his mind during a long period.

The second group of strategies discussed by (Oxford, 1990) is indirect Strategies. These are called "indirect" because they support and manage language learning without directly involving the target language they are divided into metacognitive, affective and social strategies.

A) Metacognitive strategies:

Metacognitive strategies, like centering your learning, evaluating and monitoring are " actions which go beyond purely cognitive devices, and which provide a way for learners to coordinate their own learning process (Oxford, 1990)

B) Affective strategies:

Affective strategies, however, such as lowering your anxiety, encouraging yourself, and taking your emotional temperature deal with emotion, motivations, and values.

C) Social strategies:

Social strategies, like asking questions cooperating peers and proficient users of the target language and empathizing with others.

2.3 – What successful language learners do?

Outside of the language-learning field, research-comparing experts to novices indicate that experts use more systematic and useful problem solving and native-language reading comprehension strategies.

A similar finding occurs with more successful language learners as compared to less successful ones.

Butter language learners generally use strategies appropriate to their own stage of learning, personality, age , purpose for learning the language and types of language, (Oxford and Nyikos, 1989).(Ellis, 1994) summarized the results of various " good language learner studies" into five major aspects of successful language learning.

The first aspect of successful language learning is a concern for language form.

Researchers, found that good language learners treat language as a system by making effective cross lingual comparison, analyzing the target language, and using reference books.

Good language learners also pay attention to meaning, searching for it in the second

Language data they are exposed to and trying to engage in real communication by seeking out opportunities for natural language use. For example, the learner would like to engage in learning a foreign language using sometimes words from his mother tongue to learn and grasp the real meaning of that foreign word.

Thirdly; good language learners show active involvement in language learning. Rather than developing dependence upon the teacher, they take charge of their own learning by identifying and pursuing goals and by trying to introduce new topics into conversations.

The fourth characteristic concerned their met cognitive awareness of the learning process.

Successful foreign language learners are thoughtful and aware of themselves, make conscious decisions and follow their own preferred learning style.

These learners have the ability to talk effectively about their language learning because they have a well-developed meta language with which to do it.

Finally, Ellis concluded that successful learners are flexible and appropriately use learning strategies, demonstrating the ability to choose those that were appropriate for particular tasks.

O'Malley and Chamot (1990) also undertook investigations comparing effective and ineffective students in their use of language learning strategies.

More effective students used a greater variety of strategies in all the strategy groups, and used them in ways that helped the students complete the language task successfully.

Less effective students not only had fewer strategy types in their repertoires, but also frequently used strategies that were inappropriate to the task or that did not lead to successful task completion.

3) Memory and its relation to learning:

According to (Gregg, 1975) "learning is putting an information into the memory store, while memory tends to be considered with retention and retrieval".

The brain is the organ, which is responsible for the mind. It is the basic for thinking. Feeling, wanting, perceiving, learning and memory, curiosity and behaviour.

Memory is a fundamental mental process thus, learning and memory is one the most intensively studied subjects in the field of neuroscience. Many approaches have been used to understand the mechanisms underlying this process.

In this session, T. Hirance and E, Balaban presented their original approaches toward understanding memory and learning.

Memory is a behavioural change caused by an experience, and learning is a process for acquiring memory.

According to these definitions, there are different kinds of memory.

Some memory, such as those concerning events and facts, are available to our consciousness, this type of memory is called »declarative memory " . However, another type of memory, which is called procedural memory, is not available to consciousness. This is the memory that is needed. For example, to use a previously learned skill. We can improve our skills through practice with training, the ability to play tennis, for example, will improve.

Declarative memory and procedural memory are independent.

Because of this fact, neuroscientists believe that there must be separate mechanisms for each type of memory, that probably also require separates brain areas as well.

I n any case, neuroscientists think that memory must require alterations to occur the brain.

The most popular candidate site for memory storage is the synapse, where nerve cells communicate (Kandel ER, 1991).

In other words, a change in transmission efficacy at the synapse has been considered to be the cause of memory.

A particular pattern of synaptic usage or stimulation is believed to induce synaptic plasticity.

Learning does not only involve changes in synaptic efficacy resulting from the convergence of several kinds of concurrent environmental stimulation.

Chapter: 03

3/ Experimentation

4 / Discussion of the results

5 /Bibliography

EXPERIMENTATION

This experimental work carried out at Mentoury's university in Constantine, department of English, with students of 3rd year LMD option; language sciences. Three groups were asked to perform the experiment each group is composed of ten students, and they have selected randomly. Their approximate age ranges from 20 to 24 years of age. They were taken from a part of population from both sexes.

In this test, our objective is not to classify students and to determine who is the best in memorizing and/or learning, but to collect enough data in order to study the relationship that might exist between memory and learning.

Students who participate in this experiment were asked to read carefully a short passage from a novel written by Boris Pasternak entitled "Doctor Jivako."

The first group, was given a full explanation about the context during which this novel was written, and the second group has received a quick summary of the passage, where as the control group has received no explanation about this passage. Subjects were asked to answer the questions as quickly as they can, and the time during which they were supposed to reply, was recorded by the instructor.

The statistical procedure that has been chosen for this experiment is " Test" for independent group design.

The reason that lies behind this choice is to detect whether or not there is a significant difference between the controls, and the other two-experiment groups.

The data gathered for this experiment were as follows.

Control group

(Receiving no explanation)

S₁ 2.43

S₂ 2.24

S₃ 2.25

S₄ 2.25

S₅ 2.27

S₆ 2.28

S₇ 2.28

S₈ 2.29

S₉ 2.30

S₁₀ 2.30

Experiment group1

(Receiving explanation)

S₁ 2.22

S₂ 2.44

S₃ 2.45

S₄ 2.46

S₅ 2.47

S₆ 2.48

S₇ 2.48

S₈ 2.49

S₉ 2.50

S₁₀ 2.53

Experiment group2

(Receiving a summary)

S₁ 2.35

S₂ 2.35

S₃ 2.36

S₄ 2.37

S₅ 2.38

S₆ 2.39

S₇ 2.40

S₈ 2.41

S₉ 2.42

S₁₀ 2.43

T-test is a statistical procedure, which enables us to see whether there is a significant difference between the control group, and the experimentals.

Computation

The text that was used for this experiment was as follows:

But Yury did not get typhus until much later .In the mean-time, the Zhivagos were tried to the limits of endurance .They had noting and they were starving .Yury, wept to see the party member he had once saved ,the one who had been the victim of a robbery. This man, helped him as far as he could, but the civil war was beginning and he was hardly ever in Moscow; besides, in keeping with his principles, he looked upon the difficulties of those days as natural, concealed the fact that he himself went hungry.

Questions

1-How the hero manages to escape from this booby trap ?

2-What do you know about this revolution?

3-Did it bring much benefit for the Russian people or not?

After reading this passage, and answering the questions, the instructor has found the following results, which come from recording time.

<i>CG</i>		<i>EXG1</i>		<i>EXG2</i>	
S ₁	2.43	S ₁	2.22	S ₁	2.35
S ₂	2.44	S ₂	2.24	S ₂	2.35
S ₃	2.45	S ₃	2.25	S ₃	2.36
S ₄	2.46	S ₄	2.25	S ₄	2.37
S ₅	2.48	S ₅	2.27	S ₅	2.38
S ₆	2.50	S ₅	2.28	S ₅	2.39
S ₇	2.53	S ₅	2.28	S ₅	2.40
S ₈	2.55	S ₅	2.29	S ₅	2.41
S ₉	2.57	S ₅	2.30	S ₅	2.42
S ₁₀	2.58	S ₅	2.32	S ₅	2.43

The formula of the t-test is as follows:

$$T(N_1 + N_2 - 2) = \frac{(\bar{x}_1 - \bar{x}_2) \sqrt{(N_1 + N_2 - 2) N_1 N_2}}{\sqrt{(N_1 - 1)S_1^2 + (N_2 - 1)S_2^2} \sqrt{(N_1 + N_2)}}$$

N₁ : stands for the number of subjects in the control group : G V

N_2 : stands for the number of subjects in the experimental group : $G V_2$

\bar{X}_1 Stands for the mean of the control group; $G V_1$

\bar{X}_2 Stands for the mean of the experimental

S_1 : stands for the number of subjects in the experimental group: $G V_1$

S_2 : stands for the number of subjects in the experimental group: $G V_2$

The Computation

<u>CG</u>				<u>EG1</u>			
<i>(Receiving no explanation)</i>				<i>(Receiving a full explanation)</i>			
${}_1S$	2.43	${}_1S^2$	5.90	${}_1S$	2.35	${}_1S^2$	5.52
${}_2S$	2.44	${}_2S^2$	5.95	${}_2S$	2.35	${}_2S^2$	5.52
${}_3S$	2.45	${}_3S^2$	6.00	${}_3S$	2.36	${}_3S^2$	5.56
${}_4S$	2.46	${}_4S^2$	6.05	${}_4S$	2.37	${}_4S^2$	5.61
${}_5S$	2.48	${}_5S^2$	6.15	${}_5S$	2.38	${}_5S^2$	5.66
${}_6S$	2.50	${}_6S^2$	6.25	${}_6S$	2.39	${}_6S^2$	5.71
${}_7S$	2.53	${}_7S^2$	6.40	${}_7S$	2.40	${}_7S^2$	5.76
${}_8S$	2.55	${}_8S^2$	6.50	${}_8S$	2.41	${}_8S^2$	5.80
${}_9S$	2.57	${}_9S^2$	6.60	${}_9S$	2.42	${}_9S^2$	5.85
${}_{10}S$	2.58	${}_{10}S^2$	6.65	${}_{10}S$	2.43	${}_{10}S^2$	5.95

$$\Sigma X^1 = 24.99, N^1 = 10$$

$$X_1 = 24.99/10 \Rightarrow X_1 = 2.49$$

$$\Sigma X_{12} = 389.40$$

$$X_{12} = (\Sigma x_1)^2 / N_2 = (24.99)^2 / 10^2$$

$$X_1^2 = 6.20$$

$$S_1^2 = \Sigma x_1^2 / N - X$$

$$S_1^2 = 32.74 \quad \Sigma X_1^2 = 51.49$$

$$\Sigma X_2 = 22.7 \Rightarrow x_2 = 22.7 / 10 \Rightarrow X_2 = 2.27$$

$$2S^2 = \Sigma x_2^2 / 2^N - x_2^2$$

$$2S^2 = 51.53 / 10 - 5.51 \quad 2S^2 = 0$$

$$T(N_1 + N_2 - 2) = \frac{(6.20 - 2.27)^2}{(18)(100)}$$

$$\frac{\sqrt{(10.32,74)}}{\sqrt{(10.32,74)}}$$

$$T(N_1 + N_2 - 2) = 2.06$$

T is more than the CV (1.81) => it is significant.

1S	2.43	1S²	5.90	1S	2.22	1S²	4.92
2S	2.44	2S²	5.95	2S	2.24	2S²	5.01
3S	2.45	3S²	6.00	3S	2.25	3S²	5.06
4S	2.46	4S²	6.05	4S	2.25	4S²	5.06
5S	2.48	5S²	6.15	5S	2.27	5S²	5.15
6S	2.50	6S²	6.25	6S	2.28	6S²	5.19

$${}_7S \quad 2.53 \quad {}_7S^2 \quad 6.40$$

$${}_7S \quad 2.28 \quad {}_7S^2 \quad 5.19$$

$${}_8S \quad 2.55 \quad {}_8S^2 \quad 6.50$$

$${}_8S \quad 2.29 \quad {}_8S^2 \quad 5.24$$

$${}_9S \quad 2.57 \quad {}_9S^2 \quad 6.60$$

$${}_9S \quad 2.30 \quad {}_9S^2 \quad 5.29$$

$${}_{10}S \quad 2.58 \quad {}_{10}S^2 \quad 6.65$$

$${}_{10}S \quad 2.32 \quad {}_{10}S^2 \quad 5.29$$

$$\Sigma X_1 = 24.99, \quad N_1 = 10$$

$$X_1 = 2.49$$

$$\Sigma X_1^2 = 389.4$$

$$X_1^2 = 6.20$$

$$S_1^2 = 32.74$$

$$\Sigma X_2^2 = 56.94, \quad N = 10$$

$$\Sigma X_2 = 23.86, \quad X_2 = 23.86 / 10 \Rightarrow X_2 = 2.38$$

$${}_2S^2 = \Sigma x_2^2 / N_2 - X_2^2 = 56.94 / 10 - (2.38)^2$$

$${}_2S^2 = 0.02$$

$$T(N_1 + N_2) = \frac{(x_1 - x_2) \sqrt{(N_1 + N_2 - 2) N_1 N_2}}{\sqrt{(N_1 S_1^2 + N_2 S_2^2) (N_1 + N_2)}}$$

$$T(N_1 + N_2) = \frac{(2.49 - 2.38) \sqrt{(18)(100)}}{\sqrt{(10 \cdot 32.74)(20)}}$$

$$T(N_1 + N_2) = 2.00$$

This result is more than the CV (1.81) it is significant

Discussion of the results

After carrying out the arithmetical computation the following value emerge from it, which: 2, 6.

The critical value for this test is 1,81 which means that the experimental and the controls differs largely in their performance under the two treatments, ie the controls receive no explanation, whatsoever, and were asked to answer the questions without any intervention from the part of the instructor.

The experimentals however, receive further explanation, before the start of the experiment in order to make them even more ready to grasp and understand the core idea of the text, and to see the extend to which they can manage to manipulate different concepts of the text without encountering difficulties.

The result of the second experiment (2, 00, $c v = 1, 81$) is in general support of the first experiment.

It also supports our hypothesis, which states that if learners deploy strategies and receive explanations this will make their memory very well structured, and the incoming information will settle in it in an efficient way and without encountering any difficulty whatsoever.

This indicates also, that if learners were allowed to use strategies and receive further explanation /summary, before the lecture then they will perform a task without any difficulty.

Further more, the difference between the controls and the experiments was found significant because the subjects attention was not attracted by extraneous variables ie no extra noise is coming from the outside in other words the room was completely isolated from all the possible disturbances.

This has enabled the instructor to carry out a more efficient experiment, and it is for this reasons that our hypothesis has been verified and supports largely our experiment.

General Conclusion

So, to sum up; memory has been used to describe the activities of acquiring, retaining, and recalling in order to improve the quality and quantity of what we learn.

In addition to that, memory is regarded as a place, located in the head, where recoverable experience and knowledge are housed which is considered as a very important component of learning, and in order to make sure learning has taken place we must rely on a person's ability to remember something by either mental or physical means; that is why the relation between memory and learning is very crucial.

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Résumé

Comprendre une information n'est pas une chose facile , pour cela, il est nécessaire de déployer une stratégie efficace afin de tirer le maximum d'information ,en pensant d'abord intelligemment, car l'intelligence est une base fondamentale pour procéder un développement de la mémoire.

Cette recherche nous montre comment on peut garder les connaissances et les informations dans nos mémoires,et d'acquérir les mots qu'on utilisera lorsque c'est nécessaire et les introduire dans les différents types de mémoires et pouvoir les changer à chaque fois avec le sens de la phrase .

En plus on montre la relation intime entre la mémoire et la compréhension .

ملخص

إن عملية فهم المعلومة و تخزينها تم استرجاعها عند الضرورة ليس بأمر هين ، لهذا السبب على المتعلمين أن يعتمدوا في تعليمهم على طرق و استراتيجيات فعالة التي بدورها تمكنهم من التعلم و اكتساب المعرفة بذكاء بالإضافة على أنها تساعدهم في تطوير و تنمية تعلمهم.

من خلال هذه الأطروحة سأبين كيف على المتعلم أن يحتفظ و يخزن كل ما يكتسبه في ذاكرته و كيف يسترده حينما ينبغي و وقت ما يريد مع تبيان مختلف أجزاء الذاكرة.

بالإضافة إلى هذا، العلاقة الحتمية التي تربط كلا من

الذاكرة و التعلم، دون أن ننسى أنه لا تعلم من دون ذاكرة، لأن

أساس التعلم هو الذاكرة.

Appendix

But Yury did not get typhus until much later .In the mean-time, the Zhivagos were tried to the limits of endurance .They had noting and they were starving .Yury, webt to see the party member he had once saved ,the one who had been the victim of a robbery. This man, helped him as far as he could, but the civil war was beginning and he was hardly ever in Moscow; besides, in keeping with his principles, he looked upon the difficulties of those days as natural, concealed the fact that he himself went hungry.

Questions

- 1-How the hero manages to escape from this booby trop?
- 2-What do you know about this revolution?
- 3-Did it bring much benefit for the Russian people or not?