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PRIOR KNOWLEDGE ACTIVATION THROUGH BRAINSTORMING TO ENHANCE EFL LEARNERS' READING COMPREHENSION

The Case of Second Year Learners at the ENS, Constantine

Dissertation submitted in partial fulfillment of the requirements for the magister degree in Teaching English as a Foreign Language (Reading and Writing Convergences)

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DEDICATION

To my dear parents for their love and affection.

To my dear four brothers and sister for their encouragements.

To my lovely grandmother's soul for her precious prayers.

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ABSTRACT

Teachers of English as a foreign language are in a constant search of what may help their learners increase their reading comprehension. Background knowledge activation prior to reading a text is seen as an important variable which has positive effects on readers' achievements. It can be activated using several strategies each suiting a particular text genre. Thus, both teachers and learners need to be trained to use such strategies if they aim at reaching success of their reading sessions. One of these strategies which is said to be quite effective is termed "brainstorming".

This research work investigates the degree of the impact of prior knowledge activation through the use of brainstorming in enhancing learners' reading comprehension. To evaluate this, we conduct an experimental design. We divide it into two parts in which the treatment of the experiment is reversed between the participants in Part One and Part Two. The learners are supposed to read two informational texts. Their reading comprehension is tested and their achievements are marked.

The student t-test is used to show whether the results obtained are significant or not. Through making the needed substitutions in the t-test formula and comparing the value of the observed *t* with the tabulated one corresponding to the chosen level of significance and the number of the degrees of freedom in both parts of the experiment, the obtained results are found to be highly significant. This leads us to confirm that prior knowledge activation through brainstorming enhances readers' comprehension as stated in the hypothesis.

LIST OF ABREVIATIONS AND SYMBOLS

- **EFL:** English as a Foreign Language
- **FL:** Foreign Language
- **SL:** Second language
- **ENS:** Ecole Nationale Supérieure
- **N:** Number
- **Gr:** Group
- **NL:** Native Language
- **%:** Percentage

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INTRODUCTION

1. Statement of the Problem

Second language acquisition researchers on the reading skill emphasize the role of prior knowledge activation for enhancing reading comprehension but English foreign language teachers do not give it the importance it deserves. They sometimes neglect it totally pushing learners towards the habit of reading the text directly without thinking about its content in advance. Other times, they recognize the role of the learners' already existing information about a given text in understanding it without having the sufficient knowledge about the strategies to use to ensure the activation of such pre-existing knowledge. Their use of such strategies may be spontaneous or rather haphazard one, and then does not ensure the right activation of the learners' stored knowledge but results in impeding their reading comprehension.

Through our experience as readers, we noticed the importance of prior knowledge activation in understanding texts. A text may seem difficult to understand at the first glance or may be unreadable, but once we talk about its ambiguous meaning with someone else, it turns to be clear for us. In fact, we applied a kind of brainstorming which helped us in activating our prior knowledge or sharing other people's knowledge about the content of the text. The question we would ask here is whether activating learners' prior knowledge through brainstorming prior to reading their class reading selections will help in enhancing their reading comprehension.

2. Aim of the Study

This research work aims at arousing foreign language teachers' consciousness about the importance of activating learners' prior knowledge through brainstorming for increasing their understanding of informational texts.

3. Hypothesis

Through the present study, we will attempt to establish a possible relationship between prior knowledge activation through brainstorming and the enhancement of reading comprehension. Thus, we hypothesize that the activation of upper-intermediate foreign language learner' prior knowledge of informational texts through brainstorming is likely to enhance reading comprehension.

4. Means of Research

The experiment is divided into two parts: Part One and Part Two. In Part One, the readers work on the first reading selection; and in the second part they work on the second one. The particularity of the experiment is that the experiment's treatment (prior knowledge activation through brainstorming prior to reading) shifts in Part One and Part Two. In other words, participants who receive the treatment in Part One turn to be the control subjects in Part Two and those who were the controls in Part One turn to be the experimental subjects in Part Two. The Participants' reading comprehension is tested through the use of the multiple-choice formats.

We relied on the student t-test as a means of research in this study. It is a statistical test used to draw inferences from the raw data accumulated through the experiment. It has a mathematical formula in which we make the needed substitutions. The results we obtain from this test are the ones to allow us derive the conclusion that our results are significant or not.

5. Structure of the Study

The present study contains four chapters. In the first chapter, we trace the different views to the reading act in a foreign and second language context, preparing the way for providing a definition of reading comprehension. This chapter investigates also the different variables affecting the readers' comprehension, namely the reader and the text's variables. We also provide some guidelines for the teachers of reading which may help them to achieve success in their reading classes**.**

The second chapter provides the cognitive backgrounds behind the necessity of activating prior knowledge. First, we give insights about schema and its role in the learning and reading process. Second, we talk about prior knowledge activation and the different strategies which can be used to ensure such activation. Third, we will devote part of this chapter to brainstorming; the prior knowledge activation strategy which will make use of in our experiment as a treatment.

In the third chapter, the experiment design is described and the t-test is conducted. First, we give a description of the experiment, the target population, the sample and the materials to be used. Second, we describe, and then, report the results obtained in the experiment. Third, we try to provide an accurate analysis of the findings. On the grounds of what the student t-test reveals, we state the conclusion of the study.

In the fourth chapter, we will propose some pedagogical implications for teachers of English as a foreign language which are intended to enrich their reading classes. These implications center on the use of brainstorming to activate readers' prior knowledge prior to reading the informational text as a

means to enhance their reading comprehension. In addition, we will present the study limitations and some suggestions for works of research.

Chapter One

Reading Comprehension

Introduction

In this chapter, we will try to show the place of reading in the teaching of English as a foreign language between the years of 1940 and 1950. That period was initially marked by the supremacy of speaking and listening over reading and writing. The last two language skills were recognized to be developed at the later stages of the learning process, mainly as a by-product of mastering speaking and listening.

Part of this chapter is devoted to the attempt of tracing back the different evolutionary views to reading. First, we will show how reading was considered as a passive act through which the reader relies heavily on the text. Then, we will move to show how it evolved to be considered as an active process of meaning extraction through which the reader participates in meaning building. Finally, we will state that by the late 1970's, reading turned to be an interactive process of meaning identification through which the reader plays an important role in meaning construction.

The core of this chapter centers on explaining the essence of reading which is comprehension. This latter may be low or high, specific or general, depending on how the reader approaches the text. Our focus will be directed towards exhibiting the different text and reader variables which may affect the understanding of a reading passage.

At the end of this chapter, we will try to present some guidelines for the effective reading instruction. These guidelines aim at organizing the reading lesson and thus, help the learner to understand the reading passage and ensure the teacher's success in the reading class.

1. Reading

Reading definition evolved with the evolution of the different approaches to foreign language teaching and learning. It is seen as a passive act through which the reader does nothing except identifying the text's small units, namely letters and words with no intellectual effort to be mentioned. Through time, this definition turns to be incomplete as the reader does, in fact, play an important role in reading. He is seen as an active participant who brings to the text from his mind already-stored information which helps in achieving comprehension without relying heavily on the text's print. In the late 1970's, reading turned to be an interactive process of meaning extraction. This definition dictates that the reader works out the text's meaning relying on both the text's print and his own pre-existing stores of knowledge.

1.1. Reading as a Passive Act

During the early 1940's and 1950's, reading was considered as a delayed language skill to be learnt. At that period, the teaching of English as a foreign language was marked by the primacy of some language skills over others. Listening was learnt prior to reading, and speaking was mastered prior to writing (Carrell, 1988: 2). At that period, the teachers' focus was to ensure learners' better achievements in understanding heard messages and to make them practice speaking through rote learning. The main scene in those years in foreign language classes and the different class tasks gives the impression of a noticeable absence of both reading and writing.

Within the boundaries of these early views, reading was essentially seen as "getting meaning from talk written down" and simply as substitute for the "understanding of talk" (Bumpass,1975: 182). We can notice that even the definition of reading at that period was linked to speaking. Someone who was about reading a written passage was said to be about understanding the speech recorded on paper. Moreover, what was written on paper was not termed writing

but rather a record of speech. Thus, reading was delayed till later stages of foreign language learning, and it is recognized to be learnt as a consequence of having an oral mastery of the language (Norris, 1975: 202).

In the following model, the reader was seen as a passive recipient of the print represented on the paper. No considerable intellectual effort is made by him. Everything in the text gets inside the reader's brain the moment his eyes face it. Nuttal (1982: 5) provides a suitable comparison of this view exhibited in the following figure:

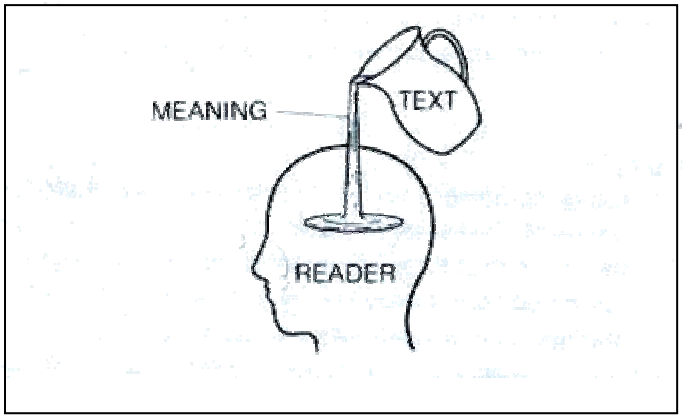


Figure 1: The Reader as a Passive Recipient.

Nuttal (op. cit. 5) compares the text which is full of meaning to a jug full of water which flows in a straight stream into the reader's mind. The latter absorbs it just like a sponge without missing a single drop. Unlike the writer, the reader does the least of the work. His role is summarized in receiving the meaning passively with no effort to be mentioned. The reader, who is in fact intellectually involved, is recognized to do no activity except picking and facing a given text. His participation in meaning construction is minimized to the least.

The reader's passivity while facing the text is known as the bottom-up model of reading a foreign language. A model of reading is defined by Davies (1995: 75) as a theory, most of the time graphically represented, to show in a formal way what happens at the brain and eyes' level once the reader is understanding or misunderstanding. It attempts to theorize the abstract mental processes in the reader's mind and the role played by his eyes. That is to say, it aids in providing a clear picture of all the abstract and hidden operations at the level of the brain and the eyes. Reading from a bottom-up view, also called text based or serial approach was seen as:

> primarily as a decoding process of reconstructing the author's intended meaning via recognizing the printed letters and words, and building up a meaning for a text from the smallest textual units at the "bottom" (letters and words) to larger units at the top (phrases, clauses, inter – sentential linkages)
>
> (Carrell, 1988: 2)

In this model, the reader is likely to proceed in a progressive process of accumulation of meaning. He starts by recognizing the smallest components of the text at hand to reach the upper constituents. At a first stage, his attention falls on the letters which compose the text's words. Then, he moves to find the words' meanings. Finally, he ends up by attempting to extract meaning from phrases, clauses and sentences. Alderson (2000: 17), on his turn, points to the fact that a bottom- up approach to reading is a serial one through which the reader identifies the graphic representations and finds their sound correspondences before moving to words with the aim of converting the encoded message. The text-based view to reading summarizes the problems of reading, at a first position, to interpreting the text's lower units and getting meaning from them (Carrell, 1988: 2).In other words, readers face difficulties the moment they fail to find sound-symbol correspondences which lead to failure with the remaining

levels; thus, not getting the text's meaning. This view is soon rejected due to the hot critics directed to bottom-up model of reading and to the strong arguments which defend the idea that the reader does not have a passive role but rather an active one.

1.2. Reading as an Active Act

In the early seventies, the psycholinguistic views regarded reading as an active act. Their arguments grounded on what Abisamra (2001: 6) explains. In her mind, FL readers are frightened by unknown vocabulary. Their resort is usually to consult dictionaries to get things clear, and this most likely impedes the natural way of reading. In fact, readers turn to work on unfamiliar vocabulary rather than reading. This over reliance on the text breaks the continuity of reading and causes the reader to lose time and interest to carry on the reading activity. For this reason, it was necessary for researchers to find solutions for readers to reduce their sole dependence on the text.

The reader is no longer seen as a passive participant who depends heavily on the linguistic input on the page but rather as someone who is actively engaged while reading. Nuttal (1982: 9) argues that an author's conveyed message is not there in the text to be suck up by the reader with no effort. In contrast, he should be in an interaction with the text to participate in building an interpretation. The reader is likely to search other sources of information far away from the text. In other words, the reader needs to compose the text's meaning through bringing information from the outside world of the text and linking it to what is expressed inside it. The over-dependence on the text reduces his chances for extracting the intended meaning as quickly and efficiently as possible. Nuttal (1982: 5) explains that the sense contained in a text is not necessarily gained in all cases. One reason for this is that the reader may fail to go to the deep intentions of the writer's expressed ideas. Therefore, it is

necessary that readers struggle with all means at hand to maximize their chances of success with a given text.

Reading as an active process falls under the rubric of top-down approaches to this act. This method theorizes reading as a process that starts from the reader moving down to the text's units. The reader is recognized to play an influential role in the reading process. Carrell (1988: 8) argues that the reader dynamically takes part in the reading process through which he guesses and processes information relying not only on his prior linguistic knowledge but also on his knowledge of the content of the text. Thus, the reader brings bits of meaning from his own, making it clear that he is involved in a way or another in the reading act. It is claimed that the reader is likely first to proceed in a top-down approach instead of directly sticking to bottom-up model. Bartlett (1932: 206) states:

> An individual does not normally take such a situation detail by detail and meticulously builds up the whole. In all ordinary instances he has an overmastering tendency simply to get a general impression of the whole; and, on the basis of this, he constructs the probable detail. Very little of his construction is literally observed … but it is the sort of construction which serves to justify his general impression.

Bartlett (ibid.) views that the reader needs first to get an overview of the text's meaning before working on details with no high emphasis on the linguistic input. This view is best supported by Dubin and Bycina (1991: 167) who argue that the readers' function is a rather completely dynamic one. They guess the semantic content as they proceed through the text, they attack large chunks at a time, they do not pay attention to letters, but instead they work to link what they already know to what they encounter as new in the text.In other words, the reader gives a greater importance to grasping meaning which is gotten through a very economic and efficient procedure .The reader under a top-down model is permitted to skip unfamiliar words and complicated sentences as long as they do

not contribute to the overall meaning of the reading passage. If the reader succeeds to work out interpretations from the text, there will be no problem if he does not comprehend all the print on the paper.

The top-down approach to reading does not prove to be a suitable solution to all readers. This model is not the full picture of all what happens in readers' minds. It neglects the importance of lower levels of processing. Abisamra (2001: 5) states that: "this model is good for the skillful, fluent reader for whom perception and decoding have become automatic, not for the less proficient, developing reader.". In other words, readers with high levels of sound-symbol and word recognition tend to be successful while approaching the text from a top-down perspective whereas those with less or no recognition skills face failure. This is again another challenge for reading theorists to try to state a clear or a full definition of reading.

1.3. Reading as an Interactive Act

The introduction of interactive approaches to reading a foreign language goes back to the late 1970's. This language skill is no longer seen as only a bottom-up decoding process or as a basically high predictive act but as an interactive one. Rumelhart (1977) and Stanovich (1980) are the first reading theorists who weighted equally both the text and reader. Identifying the text's meaning is likely to be achieved through a mutual or reciprocal action of influence between the print on a page and what the reader brings to it. The reader is stimulated by the text's cues to generate predictions and guesses from his prior knowledge, which in turn may help him to understand what is expressed at the bottom level of the written passage. The interactive approach to reading recognizes the necessity of achieving balance between concept-driven and text-driven approaches to reading. Dubin and Bycina (1991: 167) claim that the interactive approach to reading recognizes the importance of pre-existing information in one's mind and his already formed anticipations as well as it

emphasizes the great utility of having competence in working out lower units of the text.

Bottom-up and top-down approaches to reading melt together to ensure the realization of reading activity. It is reported by Hatim and Mason (1990: 266) that: "reading is a two way process". There is no rule which states from where the reader starts. Sometimes, he is likely to settle first on print then moves to higher processing. Other times, it is the other way round. Harmer (2001: 201) points that, on one hand, total understanding may be reached through getting meanings of the text's specific details. On the other hand, a general idea about the text's content may be the pathway to understanding its constituents. Whereas, Dubin and Bycina (1991: 197) attempt to state some guidelines of how the reading process works. At a first stage, the reader's eye gets from the text clues to the meaning with intricate possible predictions. These are to be sent to the brain. The latter operates to link pre-established information with the new one with the ultimate goal of easing its digestion. It is a rather difficult task to separate top-down and bottom-up processing while reading for the simple reason that it is "a parallel processing." (Eskey, 2005: 570). There is a simultaneous shift from one model to the other. That is to say, the reader uses both models at the same time switching from one to the other spontaneously. Matlin (2003: 42) on his part agreed on that once he claimed that there is no point in investigating from which level a piece of information is to be perceived. None can question whether interpretation proceeds from whole or specific levels for the simple fact that it occurs through the two ways at the same time.

The evolutionary views to reading a foreign language make it difficult to find one simple clear final definition of reading. Each approach to this language skill views it from a different perspective. In fact, it was stated as early as 1985 by Smith that "there is no point in looking for a simple definition of reading… it has a multiplicity of meanings… we should not expect that a single definition for reading will be found …" (100). For this work of research, reading is

considered as an interactive approach; a process of meaning extraction. This meaning is the result of linking the new data on the page with the reader's already existing knowledge. Eskey (2005: 570) provides a definition of reading which best suits the present study. He regarded it "as a psycholinguistic process when preformed successfully, entails both rapid and accurate decoding and the construction of meaning based on prior knowledge.". This definition makes it clear that while reading, an interaction between thought and language takes place. The reader has two sources of information to get meaning. The first source is the print on the page or the language, to be decoded. The second source is the reader's thoughts or his pre existing knowledge about the text. He is likely to depend on both sources for the construction of meaning.

2. Reading Comprehension

Defining reading comprehension necessitates an understanding of what the word comprehension means before moving to what reading comprehension dictates. So far, the attempt has been to provide a definition of reading within the boundaries of the actual research. Now, the attempt is to try to define reading comprehension .Comprehending or understanding is seen as the essence of reading. Therefore, it is important to know when a reader is judged as comprehending or miscomprehending a given text's message. To achieve that, the idea of comprehending needs to be defined.

2.1. Comprehension

Human beings are in constant attempts to comprehend what surrounds them. They search to be in harmony with the world with no confusions. Everything should have sense; otherwise ambiguity will impede their evolution. The comprehended things are stored in their memories as a bulk of knowledge to be used in the future to understand new encountered things. In the present study, the word comprehension and understanding are used interchangeably. It is crucial while understanding to take into consideration what we already know

about the world as it is argued by Smith (2004: 379) who sees comprehension as a process by which someone links what he knows about the world to what he already has as information, (intentions) and (expectations) in his head . Thus, comprehending is the state of being out of confusion and puzzling to get things clear with no misunderstanding.

Anderson (1995: 379-80) provides the idea that comprehension is analyzed into three stages. The first stage is concerned with perception. At this stage, the message being either talk or print is encoded. The second stage is called the parsing stage. At this point, what was encoded is turned into a mental map for all gained meanings. The final stage is termed the utilization stage. Here, what was acquired as new knowledge from sentences' meanings is used in understanding other things.

Comprehension is to take in information, then try to work it, and finally use it. The encoded message (whether seen or heard) is received by the one who tries to comprehend. Then, he manages to maximize meaning gains through establishing mental representations in his brain. To make sure that he has understood, the one who aims to achieve comprehension needs to be able to remember and make use of what he has gained. If he succeeds to proceed with new situations to be comprehended with no confusions and contradictions his comprehension is realized; otherwise the previously acquired meanings are just a set of misunderstandings to be reconfirmed.

2.2. Reading Comprehension

Any reader of NL/SL/FL strives to understand what he is reading. Regardless of his purpose while approaching the text, it is usually meaning extraction which he aims at. Inside a text, there is a message encoded by a writer. The latter directs it to a particular audience of readers. If this audience does not get the writer's intended message, there will be no sense of both the

writing process and the reading one. The writer will not achieve his goal to be read and understood and the reader will not profit from the writer and consequently, will not gain new insights to knowledge. Ur (1996: 138) reports that the essence of reading is understanding and that a foreign language learner who reads the words, but fails to understand them is, in fact, not reading. He is just about finding sound letter correspondences of the text's words without making any meaning. The centrality of understanding while reading was also emphasized by Nuttal (1982: 22) when she states: "understanding is central to the process of reading…". She (op.cit.) explains that "...(understanding) must be the focus of our teaching." Thus, someone who succeeds to decode the text is not necessarily understanding it. Since comprehension is the criterion which declares success or failure with the reading act, reading theorists call for the necessity of ensuring reading instruction with a focus on comprehension.

Reading comprehension is not only a matter of understanding the print on page but, it is the creation of meaning by combining what the print tells with what the reader already possesses as knowledge. To achieve comprehension, it is crucial for the reader to make use of his previous experiences. Wray (2004: 14) views reading comprehension as an interaction between what the text provides and what the reader brings to it when he states:

> Understating in reading is exactly like this. It is not simply a question of getting meaning from what is on the page. When you read, you supply a good deal of the meaning to the page. The process is an interactive one, with resultant learning being a combination of your previous ideas with new ones encountered in this text.

Vaughn and Thompson (2004: 99) agree on the above-mentioned idea. They explain that reading comprehension is a dynamic construction of meaning. This meaning is the result of the combination of the text's input, the reader's

prior knowledge, manipulation of lexis, making inferences and relating thoughts. In other words, the reader should be creatively engaged otherwise he runs the risk of misinterpreting or misunderstanding the message at hand. Grellet (1981: 7) points also to this idea when she claims that the importance of what the reader brings to the text is greater than what he finds in it.

It is worth mentioning that reading comprehension is difficult to measure. Reading theorists point out that the amount of comprehension is something which is difficult to be quantified. There are no standard criteria or scales which declare the reader's success in fully understanding the text or fully failing to comprehend it.

Other reading theorists view that if the reader reports the text's content orally or in a written way or simply answers questions about it, he is likely to be judged as comprehending successfully the text (Swan, 1976: 1).On his part, Davies (1995: 24) claims "reading comprehension is usually measured by means of retrieval rate from memory.". This idea establishes confusion between the nature of comprehension and memory capacities.

It is not a rule of thumb that someone who remembers the text's content is necessarily someone who has understood its meaning. A reader may memorize a Shakespearian soliloquy or a piece of prose without even knowing the meaning it conveys. Thus, memorization or remembering differs from understanding. For Alderson (2000: 7), reading comprehension occurs when the reader remembers the input gained from the text without being back in it for confirmation but, at the same time, he explains how this idea denies the existing difference between remembering and understanding. In contrast, Smith (2004: 60) defends the idea that reading comprehension cannot be measured in all cases. He writes:

> Comprehension cannot be measured in the way that some aspects of information can. Comprehension cannot be measured at all, despite constant educational efforts to do so, because it is not a quantity of anything. Comprehension does not have dimension or weight; it is not incremental. Comprehension is not the opposite of uncertainty or even ignorance, and therefore is not quantifiable as the accumulation of a number of facts or items of information.

Comprehension is an abstract process. It cannot be treated as a concrete matter to be counted. Moreover, attempts to measure it are recognized as relative ones. They fail to report real insights of what is judged as understanding or misunderstanding.

Understanding a text differs from one reader to another. It is impossible that readers gain an identical meaning from the same text. The writer will not be physically present to explain what he meant by the point dicussed on a page. Thus, every reader provides his own meaning according to his own previous knowledge. None can judge his own interpretation to be the one meant by the writer. Therefore, the meaning derived by the reader is a relative one. There will be no single interpretation. Alderson and Urquhart (1984: 63) point that those who consider understanding as a process of building a given meaning for the text are in fact mistaken; for the simple reason that, there is no sole meaning but a number of possible meanings.

3. Levels of Reading Comprehension

There is no one level of reading comprehension. A reader may stick to what the lines of a text may say. In this case, his main concern is the information stated on the surface. The reader may also search between the lines and even beyond the implicit information. Here, he is likely to make use of his previous experiences about the text's world and the world in general. He may also approach the text critically. That is to say, he works to provide his own point of

view and evaluation of what he has read. For example, expressing appreciation or dislike for a literary piece of writing. Therefore, we can estimate that in the first case, the reader's comprehension is a superficial or rather a simple one. Whereas, In the second case, the reader's comprehension is a more elaborate one. Alderson (2000: 7) points also to the distinction between having the general idea of a text and having all the specific details. Sometimes, the reader's purpose is to get just a general idea about the text. This is termed skimming. Other times, he strives for the smallest details, and this is called scanning. Therefore, comprehension is high or low, general or specific depending on how the reader approaches the text and on what he aims at while reading.

4. Factors Affecting Reading Comprehension

Reading comprehension is influenced by the presence or absence of some factors. Some of these factors are attributed to the text while others are specific to the reader.

4.1. Text Variables

The text is one of the main factors which influence reading comprehension. It received little research in comparison with other factors belonging to the reader. The text is defined by Davies (1995: 194) as "a coherent piece of writing exhibiting both structure and texture, assignable to a single author or collaborating authors, with clearly defined boundaries making the beginning and end of the writing.". Therefore, the writer or a number of writers put print on paper with a clear beginning and a clear end. This print is delivered under conditions of coherence and cohesion. The text can be a paragraph, or a set of paragraphs as it can be in prose or verse. It may have different types according to the content it expresses. In addition, vocabulary, sentence structure and syntax are important elements to look at while analyzing text's influence on reading comprehension.

4.1.1. Vocabulary

Vocabulary is an important aspect in the text which has a great influence on reading comprehension. FL readers usually face problems with new textual items they ignore. It is one of the obstacles to natural and spontaneous reading. In other words, a reader facing such problems usually sticks to finding definitions in dictionaries. Knowing that a lexical item may have several definitions according to the context it falls in, a reader may be successful in getting the right definition, as he may be puzzled more and more. This is likely to be a waste of time, energy and in most cases causes the reader's motivation and interest to fade away. Coady and Huckin (1975: 20) comment on vocabulary importance in ensuring texts' comprehension. For them, comprehension is reached once a passage's lexis is covered .This is a general rule for any text's language being a foreign, a second and even a native one. So, vocabulary knowledge is recommended for the understating of a given text either being in a native language or a target one.

In cases when the reader aims at gaining a general comprehension of the text, he may skip words he ignores trying to predict their meanings from the surrounding context. In some other cases, when the reader studies the text intensively with a need for thorough comprehension, he needs to have an acceptable percentage of known words and very little amount of unfamiliar ones. In general, lexical knowledge is critical while comprehending. The amount of this knowledge is determined by the level of comprehension or the type of meaning the reader aims at.

4.1.2. Text Type

Text type is likely to influence the reader's comprehension. Each type has its own characteristics concerning the general theme and the way it is structured. Moreover, the text type dictates sentence structure and vocabulary choice. Davies (1995: 83-88) argues that a text is described according to its rhetorical

function. He sees that a text is either persuasive, descriptive, expository, etc... These functions reflect neither the text's level of difficulty nor its content, but simply, they are indicators of the author's social goals .He referred also to more specific lower-level rhetorical functions such as cause-effect, comparison-contrast, argument-exemplification, problem-solution patterns and general-particular patterns of the text. Therefore, each type of writing shows a particular way of development, and a special sequence of the writer's thought. The reader needs to be aware of these types of development to make sure that he will be successful in following the author's flow of ideas.

In general, the text type falls under two big categories namely the narrative and expository text. The reader should be aware of the different features of the narrative text. He needs to keep in mind that a narrative passage usually tells a tale either a short story, folktale, myth, fable, legend, fantasy and science fiction as it reports biographies. It has an opening section, the heart of the events and a closing section. The narrative text centers on some elements which are the characters, settings, themes, the conflict, sequence of events which settle the plot and a resolution of the conflict (Comprehension Instruction: 13). These features are termed by Rumelhart (1980: 313) "story grammars". He argues that these story grammars are helpful and very useful in understanding considerable portions of the story to be read. Thus, the reader's comprehension is affected by how much he recognizes these above mentioned features. Hyland (1990: 14) states that "effective understanding is therefore seen as being dependent on the reader's ability to relate the structure of a text to a familiar conventional pattern". A reader tackling a narrative text should not start from vacuum. He will get inside the text with the previous knowledge of meeting characters, following a sequence of events with conflicts and solutions. This is likely to direct his attention and focus and helps in maximizing his comprehension.

The reader also should be aware of the different features of the expository text. The author's goal is most of the time to inform or expose the information. It is usually associated with science and history texts. It is claimed that the informational text contains difficult vocabulary, in some cases domain specific or technical items. For this reason, it is seen as the most difficult text genre to tackle and to understand. Readers need to be prepared for the expository text features, information statistics, numbers, graphs, technical vocabulary with the different types of development namely description, classification, contrast, cause and effect… This previous expectation of the text structure pattern reduces some of the reader's load and eases his comprehension.

To sum up, the reader recognition of the different rhetorical goals and the different organizational patterns of the text influences reading comprehension. Whenever the reader possesses this type of knowledge, his chances of success with a given piece of writing are increased.

4.1.3. Coherence and Cohesion

Coherence and cohesion prove to have influence on reading comprehension. A coherent and cohesive text is likely to be easier to read than a text which lacks these two aspects. The reader must feel coherence, that is to say the sense of continuity and connection between the text's sentences and paragraphs. Trimmer (1995: 169) sees the coherent paragraph as a set of connected sentences which help the reader to move from one idea to another easily with no separations. If the text at the reader's hand lacks coherence, the reader will not be able to follow the writer's train of thought. He may read the text several times in an attempt to establish connections. This is likely to turn reading into a difficult boring task.

Cohesion also affects the reader's achievement. He must be conscious of the relations existing between words. It is best defined by Davies (1995: 101) who sees it as the different existing possibilities of relating sentences' words to produce comprehensible structures well linked and well connected. Lack of cohesion will eliminate possible connections between words and this one reason of the text's difficulty. The reader cannot see what refers to what. Moreover, coherence is affected by the lack of cohesion. Davies (1995: 101) explains that cohesion is crucial for establishing coherence. That is to say, a text which lacks cohesion will not be coherent .Furthermore, cohesion facilitates reading. Yun (1993: 13) explains how this may happen: "It provides the basis for making predictions and building expectations. The continuity expressed by cohesion constitutes the context that provides the basis for making predictions and building expectations in reading.". Thus, cohesion helps the reader to put alternatives for the meaning intended by the writer. This is likely to speed reading and reduce confusions. Cohesion also encourages the reader to rely on the content to predict words' meanings which will minimize readers' reliance on dictionaries.

4.1.4. Automaticity

Automaticity is another aspect of reading which affects reading comprehension. It is the rapid recognition of words by the reader while reading. It is one requirement of fluent reading. Hawkins (1991: 171) states:

> As automaticity in decoding develops, the learner would also improve in terms of comprehension, since there would be more "freed-up" processing capacity for comprehension as decoding skills become automatic.

In other words, if the reader is skillful in word identification, his attention will be focused on processing meaning instead of spending time on the process of

decoding. Rapid recognition of words' letters and sentences' words will save the reader's time to focus more on building interpretations for the text at hand.

4.1.5. Syntax

Problems of comprehension may arise from sentences' syntax. Sentences vary in their structures. They are simple, complex, compound or complex compound. Text subordination and coordination may cause problems of comprehension. In addition, very long phrases are likely to create difficulties. In other words, a very long stretch of words with no verb or action may be a source of confusion. Moreover, Types of words may also cause syntactic problems. Complication of a sentence may be attributed to the presence of complex, compound or nominal words in it. Sentence length is another factor which may settle difficulties in understanding. Erickson (2003: 6) argues that the reader who is not accustomed to the different sentence structures, will certainly face problems in comprehending texts.

4.2. Reader Variables

Factors belonging to the reader take the lion's share of works of research in reading. Researchers aim to prove to what extent the reader's cognitive and affective capacities influence reading comprehension. Among these factors, we have the reader's level of interest in the text, his purpose of reading, his language proficiency, culture and his familiarity or unfamiliarity with the text's topic. Each of these variables is likely to determine the reader's level of comprehension.

4.2.1. Purpose of Reading

The reader approaches the text with different purposes and his intention while reading influences the way he reads and the level of comprehension he achieves. The reader may read for pleasure. Thus, he will not focus his attention to get bits and pieces of the text. He may skip wide passages unless his overall

comprehension is not affected. Here, the reader aims at getting a general understanding without sinking into details. This is the case with extensive reading when the reader reads for fluency and extracts global meanings. The reader may also approach the text with the purpose of intensive study. In this case, he struggles with what is particular and what is general with the overall aim of getting meaning to the last drop. Therefore, he tackles the text with a much-focused attention to get all the details to achieve accuracy. The reader's purpose may surpass pleasure and detailed comprehension to criticism and evaluation. Thus, he tries to go beyond the text to exhibit his personal views about what he has read. Moreover, the reader may skim the text to get its gist. Through skimming, he may decide relevance of the text to his intention as he may decide that it is out of subject. In addition, the reader may scan texts like menus, telephone directories and even texts for specific information.

The reader should have a purpose in his mind while reading. Reading will be a pointless activity if he gets inside a text aimless. Wallace (1980: 9) argues for the necessity of having a purpose. In his mind, someone who starts reading with no pre-established purpose or simply starts with a kind of confusion is likely to end up by being bored of the reading act. In addition, his results in terms of comprehension are to be low if not he fails to understand at all. Walking aimless will end up by attending no goal. That is what will happen if the reader reads with no objectives. Whether he intends to find answers to questions, aims at getting information, or simply searches joy, he cannot engage in the text without having a precise purpose. It is one way to save the reader's time and energy. Moreover, it ensures his involvement and enthusiasm while reading.

It is worth mentioning that the purpose for reading a text may change from one time to another. We may read the text at first for pleasure. With this purpose in mind, we may be affected by some passages which may not affect

us in another reading with a different purpose. With the change of the purpose; one text may be read, comprehended and appreciated differently. Thus, purposes of reading are seen to be "not static: we may return to a text and make quite different meanings with it on each occasion." (Chandler, 1995: 13)

4.2.2. Interest Level in the Text

A reader who is highly interested to read a passage is likely to comprehend it. The idea of interest while reading grounds on the reader's motivation and this is a variable to reading comprehension which stands by its own. A text which hooks the reader's attention through its aesthetic aspects, choice of vocabulary and theme is likely to encourage the reader to sink in it. The reader's desire to stick to the text gets higher and higher until he ends up with it. In most cases, he rereads once and twice widening, each time, the scope of his comprehension. So, the reader's preferences and motivation are of a crucial importance in reading comprehension. Widdowson (1978: 80) argues that the readers usually attend to what is related to their likes and interest and that they do not worry about texts which do not arose their curiosity and motivation. Boredom and difficulty while reading may be reduced if the reader reads the selections which correspond to his preferences.

4.2.3. The Reader's Language Proficiency

A foreign language reader's language proficiency is important in determining his reading comprehension. The reader's level in the linguistic components of the language correlates with how much he understands the text. If he possesses a large amount of vocabulary, knows the different cohesive devices and masters the different sentence structures, he is likely to face no difficulty while processing the text. The reader cannot go directly on generating predictions and anticipating the text's meaning without first attending to the linguistic input exhibited on the page which serves as stimulus for what the reader brings to aid his comprehension. Thus, if he fails to understand what is

represented on the page, the reader cannot go on guessing and anticipating. Therefore, the reading process is hindered with the lack of language proficiency.

4.2.4. Culture

Culture is one component which has an influence on FL readers' outcomes in comprehending reading passages. This concept is a real issue for reading theorists. Some view that reading helps FL readers to confront and grasp the target culture. Rivers (1968: 237) argues that foreign language readers and through reading works of literature are likely to get knowledge of the foreign culture, how people think and behave. It is an occasion to get a clear picture of foreigners' cultural heritage. Other reading theorists view the target culture as an obstacle for comprehension. The reader may reach high linguistic proficiency but he rarely possesses a full cultural background of what he is reading. Thus, problems of comprehension may arise with the lack of cultural knowledge which is considered as double edged component in FL reading comprehension.

4.2.5. Knowledge of the Topic

A reader who is familiar with the text's topic is likely to achieve better comprehension. Someone who engages in reading without knowing before hand what he is reading about will not get the whole message of the text. He may understand isolated words, as he may comprehend phrases and sentences but the overall meaning will always remain ambiguous. The reader keeps on wondering what is the point raised by the author, but each time, he fails to state a given sense. An example of readers' failure to understand because they do not know the text's topic is with poetry. They usually see reading and understanding poetry as a difficult task. Words and sentences of the different verses may be grasped but the overall meaning or message of the poem is often missed. If the reader knows in advance about the poem's topic or subject matter his reading will be different and his understanding is likely to be achieved easily

5. Effective Reading Comprehension Instruction

A reading lesson is organized into three stages: Pre-reading, while-reading and post- reading. At each stage, the reading teacher and students are supposed to pass by some exercises, tasks and activities to achieve some objectives. These stages are called phases of reading. They, together, aid readers to increase their gains from a text. They are likely to serve as an effective reading comprehension instruction in the reading class to improve readers' reading ability.

5.1. The Pre -Reading Phase

Pre- reading activities are of a great importance in preparing readers to read. As a first step, they help to activate readers' prior knowledge about the text's topic. Stoller (1994: 3) states: "…Pre-reading activities can be utilized (a) to tap students already existing background knowledge, and/or (b) to provide students with new information that will help them comprehend the passage.". Therefore, these exercises help readers to bring stored information in their schemas to the surface to be used to comprehend the text. Moreover, they serve to weapon the reader with new information he is likely to encounter in the text. Thus, to some extent, the reader will be mentally prepared. In addition, the pre-reading phase helps to break readers' ice, that is to say, it ensures to some extent his psychological readiness to engage in reading. In other words, this stage invites readers' wills to read by increasing their interest and motivation. The readers will have chance of peer interaction which will help them benefit from each other's already existing schemas, hence, widening their knowledge stores with the possibility that one reader's interest and will to read may infect that of another reader.

There is a variety of pre-reading activities. The teacher has the opportunity to choose the best suited one according to the type of the text the readers will read. A given exercise may suit one text type but not another. Thus, the teacher must attempt to give pre-reading exercises which match with the

text to be read. He may manage to combine one or more activities to form a whole pre-reading plan to ensure readers' preparedness to engage in reading. What follows is a summary of a non-inclusive list of pre-reading activities which suit magazine articles as proposed by Stoller (1994: 2-7). Some of these activities can be adopted for other types of reading selections.

The pre- reading activity	Brief definition	Benefit
Semantic mapping	A graphic representation on a blackboard showing readers' prior knowledge in the from of connected categories to a given concept.	- It helps learners bring their prior knowledge to the surface. - It ensures group interaction. - It aids readers to understand what they will meet in the text.
Study the lay out of the reading passage	Pass quickly by : the text's title, subtitles, headings and visual representations and guess what they hold as meanings.	- Aid learners go on pre-reading the text's content - Prompt readers to ask questions which they will try to answer after reading.
Skim for the main idea(s)	Readers are asked to read the first and last paragraphs of a text plus the first sentence in the remaining paragraphs in few minutes.	- To state the main idea of the text they are about to read.

Scan for details	Readers are asked to search for specific information in the text.	- To make them know what is the difference between skimming, scanning and reading.
Match main ideas with paragraphs	The teacher provides learners with the main ideas of a text's paragraphs. They are to be asked to match each paragraph with the idea it expresses.	- Readers will be accustomed to the idea that each paragraph centers around one idea.
Examine the visuals	Readers examine the charts, graphs or figures.	- It helps reader to guess the text's ideas.
Read selected articles carefully.	The reader may read just one article which may cover what is to be expressed in the rest of the magazine	- Readers may answer questions about the whole text through reading one paragraph (to save time).
Present main ideas	The teacher informs readers about the article's topic if they are unfamiliar with it.	- Direct readers towards the text's key words and ideas.
Consult the dictionary	Readers search words (presented in a context) in their dictionaries.	- Know words meaning in context. - Know words synonyms antonyms. - Know about the text content.

Consider new vocabulary	Difficult, new and crucial vocabulary in comprehension is considered prior to reading the text.	- Helping students to get words' meaning to face no comprehension problems.

Table 1: Pre-Reading Activities Suiting Magazines' Articles.

Pre-reading exercises may turn to be not helpful for readers. The teacher and through these exercises tend to introduce readers to read. His objective is likely not to be reached if he does not respect some guidelines of a successful introduction. These guidelines are suggested by Nuttal (1982: 153) who argues that it is better not to introduce the text at all than providing readers with a misleading introduction. She (op.cit) mentions three important key mistakes that a teacher may fall in giving what she termed a "wrong kind of introduction":

(a) The introduction is too long.
(b) The introduction is irrelevant (and this may be actually confusing rather than helpful since it steps up misleading expectation).
(c) The introduction is a monologue by the teacher, with no student involvement.

The pre-reading phase takes a short time. Although it is of a great importance, it necessitates little time. Time is better saved for the reading process itself and not for introducing it. A lengthy introduction has a negative consequence on readers' achievements. It steals them the opportunity to read, reread and to go deeply into the text's details. Reading theorists agree that a pre-reading phase should be short in time but they state no exact time limitations. For example, Nuttal (1982: 138) limits the time readers may spend in debating a text's topic (prior to reading it) by five minutes. She adds that the teacher may go

beyond that if the topic is complicated but in condition that the pr-reading time remains short (Nuttal, 1982: 13). We may also say that the term short is relative because it depends on the time devoted for the whole reading session. In other words, the pre-reading phase is shorter than the while-reading and post-reading phases.

The teacher should make sure that the pre-reading phase centers around the text's topic. Providing readers with an irrelevant introduction is as if they are not introduced at all. Any idea that is seen out of the text's subject serves to make the reader far away from the text. Thus, he is likely to make wrong anticipations which hinder the process of reading and decrease the chances of a high reading comprehension.

In a pre-reading phase, the teacher should stand as no more than a guide. His essential role is to orient readers. Sequero (1998: 29) states: "During the WFR (warming up for reading) activity, the teacher becomes a facilitator. The teacher monitors students helping them to clear up doubts." Therefore, the teacher manages to stimulate them, to bring their pre-existing ideas, organize them and to make predictions to be confirmed or disconfirmed while reading. If he excludes readers' participation and goes on dictating and imposing his own ideas, the readers' benefit from this stage will be minimized. Thus, his attitude should be a very careful one if he aims at ensuring a successful introduction.

5.2. The While- Reading Phase

The while-reading phase is seen as the core of the reading session. The reader will be occupied by reading and extracting as much meanings as possible. Compared with the pre-reading phase, the during-reading phase takes a longer period of time. One reason for this and as it is claimed by Eskey (2005: 574) is that "people learn to read and to read better, by reading.". As much as the reader reads, he is likely to master the skill. This idea does not prevent the teacher from

helping the reader by some while-reading activities. The table below shows some while-reading activities for reading magazine articles presented by stoller (1994: 6).These activities are suitable for other types of texts.

The while-reading activity	Brief definition	Benefit
Read for specific purposes	Readers read to accomplish tasks provided by the teacher.	- Read with purposes in their minds in a selective way which helps in focusing their attention.
Highlights the text	Mark or underline the main ideas.	- Help readers find answers to question to be asked after reading easily.
Note taking	Readers take notes on the article while they are reading.	- These notes will be used to deal with other tasks.
Predict the content of the article	After ending with a part of the text, readers try to predict what will come next to it.	- Readers gain the chance to know about possible interpretations of the text.
Determine what has happened	After ending with a part of the text, readers try to give the main idea of what they have read.	- Readers engage in reading other parts with a summary in their minds.

Table 2: While-Reading Activities Suiting Magazines' Articles.

5.3. The Post-Reading Phase

Readers as well as teachers need to confirm how much understanding they achieved. This should be the main objective of post-reading exercises. Stoller (1994: 5) states: "post-reading exercises… give students the option to review, synthesize, summarize, and/or react to what they have read.". On one hand, readers will become, and through these exercises, conscious of what they gained as meaning as they may comment on it. On the other hand, teachers evaluate and assess their readers' comprehension success or failure, which can be used as a background for further decisions in their coming reading sessions. We may provide as an example some post-reading options for reading magazines' articles proposed by Stoller (1994: 5-7).

Post-Reading Activity	Brief definition	Benefit
Discussing the article with classmates	After ending up with reading, students discuss what was expressed in the text.	- Communication among readers. - Invite readers' own responses.
Generate summaries or reactions	Summarize the text orally or through writing.	- Making use of the information presented in the text.
Search for meaningful vocabulary	Check idiomatic expressions, words' synonyms and antonyms and words' families in the text.	- Know more meaningful vocabulary items.

Scan for details	Searching the text's details through answering specific questions.	- Know the text's deep details.
Make inference	Readers infer hidden meanings.	- Know the between lines hidden meanings
Sequence events	Students are required to order disordered list of events.	- Follow the text's chronology to arrive at sequencing events.
Apply information from the article	Use information in other activities : information gap activity, problem solving activity, debate, simulation game, role play,… etc.	- Use the information gained from the text in situations in their lives.
Follow-up on pre-reading and while-reading activities	Compare their post-reading gains with their prior and while-reading suppositions.	- Confirm or disconfirm the pre-made assumptions.
Create or revise semantic maps	Readers revise their prior reading semantic maps or create new ones.	- Summarize and better recall of the text's content.
Synthesize information from multiple sources	Gather information about the article's topic from other sources.	- Help readers connect ideas from different reading sources.

Table 3: Post-Reading Activities Suiting Magazines' Articles.

6. Testing Reading Comprehension

Testing reading comprehension is one of the main difficult tasks that may face reading teachers and theorists. The reason behind this is better stated by Retorta (2000: 128) who claims that reading differs from writing and speaking on the grounds that the reader's performance is never perceived whereas that of the speaker or the writer is observed and measured. In other words, unlike speaking and writing, reading is recognized as an input skill. That is to say, the reader is supposed to absorb the information as an intake and we are never sure whether he has absorbed it with an appropriate understanding. In reading, there is no production. That is to say readers' performance is an abstract one which takes place at the brain level. Thus, measuring this performance is a very complicated task.

Though measuring reading comprehension is widely observed to be difficult, reading teachers need to know about their readers' achievements after reading a text. For this reason, many reading comprehension question types are provided to test readers' success or failure with a given text. This may help readers know whether they have understood or not as it may aid teachers in making further decisions in the reading class.

Reading comprehension questions have several forms depending on the level of comprehension they fall in. There is a grid for developing and evaluating reading comprehension questions which shows levels of comprehension (not all possible interpretations of comprehension) with a non-inclusive list of comprehension question forms. This grid, presented by Day and Park (2005: 62) is developed initially to aid the teaching of reading comprehension.

Forms of questions	Type of comprehension					
	Literal	Reorganization	Inference	Prediction	Evaluation	Personal response
Yes/no						
Alternative						
True/false						
Who/what When/where How/why						
Multiple Choice						

Table 4: Reading Comprehension Questions Grid Developed by Day and Park (2005)

The multiple-choice questions and the cloze procedure (not mentioned on the above grid) are seen as the most efficient tools for testing reading comprehension. There is a hot debate among reading theorists to decide about which one of these tools is the best in reflecting readers' comprehension. Each is said to have advantages as well as disadvantages which makes it difficult to choose between the two tools.

6.1. The Cloze Procedure

Many reading theorists saw the cloze procedure as an efficient means for testing reading comprehension. Readers will be provided by a passage with systematic deletions every fifth, sixth, seventh,…or tenth word. They are likely to predict what may fill in the blanks (Bastidas, Jesus, 1984: 91).Although the cloze procedure is the picture of the real reading process in which the reader

makes predictions making use of his prior knowledge, it was criticized on the grounds that it tests readers' language proficiency (Lexis, grammar, …).This is the reason behind our choice of the multiple-choice formats to test readers' comprehension in the study investigation.

6.2. Multiple-Choice Questions

Multiple-choice questions are said to be widely used in testing reading comprehension. One important factor about this form of comprehension questions is that: "they give the students some possible answers." (Day, Park: 67). That is to say, the reader is provided by a question and some choices of the answer. One criticism of this form of questions is that they may not really reflect readers' comprehension. In other words, a reader's choice of the correct answer may be a matter of chance. In spite of this, multiple choice questions are still recognized as practical, valid and reliable formats of testing reading comprehension.

Conclusion

With the differing views of reading, it was hard to settle a clear and an accurate definition. Reading theorists provided a vast and diversified terminology which makes it a difficult task to find something agreed on. Reading as an interactive act is seen as the most advocated view because it excludes none; neither the reader nor the text, from reading. Both are recognized to play a significant role. The reader brings from his own stored information and links it to the information presented in the text. This idea is the center of this study and this is the reason for agreeing on reading being an interactive process of meaning extraction.

It was of importance to try to define reading comprehension. This was again a hard thing to achieve. To be out of this problem, the attempt in this chapter has

been to provide the different levels of reading comprehension and the different factors affecting it. This is the result of the logical view that reading comprehension, in fact, cannot be defined. None can judge himself as fully comprehending for the simple reason that he remains a reader and that the text was encoded by someone else who is the writer.

It was interesting to mention the different factors affecting reading comprehension. This is the area which has been the main focus of reading theorists and teachers. The reader variables received much emphasis in comparison to the text variables. In the present study, the focus will also be on a reader variable namely, the activation of his prior knowledge which is likely to be developed in the coming chapter.

Chapter Two

Prior Knowledge Activation through Brainstorming

Introduction

Connectionist views to learning and teaching a foreign language claim for the importance of a learner's prior knowledge. They argue that a learner makes use of his already existing stores of information to understand inputs he will encounter in new learning environments. These approaches recognize the importance of the reader's prior knowledge in learning considering reading to be a learning activity.

The importance of the reader's prior knowledge in reading is supported by the advocators of the cognitive theory called schema theory to reading. This theory was referred to as early as 1932 by Bartllet who himself attributed it to Head in 1920. This theory states that someone's knowledge is packed into some mental homes residing in long-term memory. Carrell (1983) provided two types of schema: content schema which is culture specific and formal schema which is language specific.

Prior knowledge presence is important and its activation is crucial. The reader needs to activate his prior knowledge prior to reading a text if he aims at understanding the text. The teacher supports readers in achieving that through a set of prior knowledge activation strategies. They are varied, each one best suits a given text type.

Brainstorming is the prior knowledge activation strategy to be used in the actual study to activate readers' prior knowledge. This strategy is seen to be successful with informational texts. It has rules which are beneficial in ensuring the reader's mental and psychological readiness to tackle a reading passage.

1. Definition

Aiming at defining background knowledge is a difficult task. Reading theorists provided several definitions varying between simplicity and complication. The complexity lies in setting boundaries for what is knowledge or what are the different types of knowledge. In other words, defining the nature of the things to be considered or to be classified as knowledge is a very hard thing to achieve. Moreover, one needs to look at how knowledge is acquired, from where it is acquired, how it is stored or organized in the brain and how it is used. All these factors are of importance in determining the nature of background knowledge. A simple concise and precise definition cannot be provided but every time we look at one of the above mentioned factors, we are likely to contribute in setting a more elaborate one.

Reading theorists' definition of background knowledge turns around the idea that it is what one already knows before intending to know more. What one already knows is vast and varied. It is all what the human being has acquired since his birthday. That is to say, the bulk of information one keeps gathering and accumulating along a period of time. No importance whether it is academic or everyday information. So, none is likely to tackle a learning task including reading with an empty mind. There must be an amount of information which is of great utility if it is to be found of relevance to the new learning environment. Background knowledge is the thing the learner builds on while attempting to get new knowledge. He cannot start from scratch or vacuum but instead a starting point is best recommended.

There is an extensive terminology to refer to or describe what one already knows. The term background knowledge was used synonymously with other terms such as prior knowledge, previous knowledge, pre-existing knowledge, person's whole knowledge, non-visual information, schematic knowledge, old

knowledge/information and already acquired knowledge. For this work of research, these terms are used interchangeably.

Smith (2004: 13) terms prior knowledge "non visual information" contrasting it with "visual information". On one hand, he views that what the reader reads on a page is what the eyes, in fact, extract and send to the brain and this is to be called visual information. On the other hand, he recognizes the existence of hidden mental sources of knowledge residing in one's brain to be called non-visual information. These are what he considers as prior knowledge. Thus, Smith (op. cit.) settles one characteristic of background knowledge which is that prior knowledge resides in some mental homes to be used by the reader if he attempts to make sense of the visual information. Therefore, prior knowledge exists in our heads and helps to make sense of what is outside them.

Prior knowledge which the reader should possess is a melting body of information. The latter includes a variety of what a person experiences in his world taking into account his reading experience in the world of the text. In addition, knowledge about the written texts, their genres, words' meanings belong to this bulk of information (Comprehension Instruction, 2002: 9). It is noticed here that background knowledge is not one sort of information. In fact, too much and varied information is connected in a way or another and cannot be separated constructing one person's whole already existing knowledge. It is not clear whether the reader makes use of one sort of information and not the other nor it is evident that he starts by one type of knowledge then moves to the second. Davies (1995: 68-69) argues that while the reader is processing a text, and at any stage, the different types of knowledge will be in constant interaction with each other. They are used in a very haphazard way which cannot be observed in a direct way. Along this work of research, background knowledge is considered as one body of the different types of information. That is to say,

once we refer to prior knowledge, we will mean the sum of all the types of knowledge with no separation.

2. Schema Theory

Research on the significance of background knowledge in reading grounds on schema theory. This theory states that reading is an interactive act between what the reader already knows and the new information he is likely to encounter in the text (Sequero, 1998: 48). In other words, the reader will be absorbing new inputs to be built on what is there in his mind. Schema is defined as early as 1932 by Bartlett as "an active organization of past reactions, or of past experiences." (201), in a time that Woods (1996: 59) reports that Bartlett himself attributes the idea of schema to Head (1920).In fact, Bartlett (1932: 206) was vague and gave no details about how schema works. He expressed his wishes to know how schema works. Other reading theorists provide sufficient information about the theory in their attempts to show its usefulness in text processing. Alderson (2000: 17) provides a precise and a concise definition of schema when he states that it is: "Networks of information stored in the brain which act as filters for incoming information". Therefore, schema (plural schemata/schemas) is the mental map which organizes knowledge in someone's brain and which helps in interpreting the new coming information.

A good definition of schema is stated by Rumelhart and Orlony (1977).It expresses what schema is as it shows where it is situated in one's brain.

> Schemas are data structures for representing the generic concepts stored in memory. They exist for generalized concepts underling objects, situations, events, sequences of events, actions and sequences of actions . . . and the network of interrelations that is believed to generally hold among the constituents of the concepts in the question" (Rumelhart, orlony, 1977; cited in Woods, 1996: 62).

Therefore, we understand that schema resides in memory and plays the role of a store, which holds generalizations about what exists in the world. All that information is organized and linked in the form of constituents which interact together.

3. Types of Schema

Carrell (1983) distinguishes two types of schema. The former is termed formal schema and the latter is called content schema. These two names dictate types of knowledge which exist in each schema type. This distinction does not imply a total separation between the two schemas. In fact, both schemas are used in parallel. In other words, this separation is more theoretical than real. The reader or the learner formal and content schemas interact to ease the extraction of meaning. The different sources classified under these two headings are used with no regard to the type of schema they belong to.

3.1. Formal Schema

Formal schema is one thing the reader should posses to ensure facility while tackling new information. Carrell and Eisterhold (1988: 79) state that it is one sort of prior information readers need to have. Knowledge type which is linked to formal schema is language knowledge. This type of knowledge is one of the main difficulties SL/FL readers encounter. Lack of this type of knowledge will make the text unreadable and cause problems of comprehension. Formal schema is also termed language knowledge. The different sources of knowledge which are said to constitute formal schema are linguistic sources which concentrate on vocabulary knowledge, syntax, grammar, meta-linguistic knowledge and genre knowledge.

Alderson (2000: 35) argues that readers face problems of comprehension once they encounter unfamiliar vocabulary. Thus, the presence of this type of knowledge is crucial for a successful reading activity. The amount of known words is likely to free the reader from using the dictionary and make him concentrate on other features of the text. If he lacks vocabulary knowledge, the reading process will be hindered. Moreover, vocabulary knowledge can ensure reader's automaticity thus enhancing reading speed. Hirsch (2003: 12) states that: "word knowledge speeds up word recognition and thus the process of reading". The reader cannot stick to decoding the message word by word. This is likely to overload his short-term memory and cause problems of comprehension. If the reader does not go quickly on the decoding process, he will forget the decoded information before he fully grasps it. Vocabulary knowledge alone is not sufficient to ensure comprehension. It needs to be combined with other types of knowledge.

The reader should possess knowledge of the language grammar and syntax. These two aspects of the linguistic knowledge are of importance in reading. To succeed in any reading activity, the reader should be equipped with knowledge of different sentence structures and how bits and pieces of knowledge go together. He must go inside the text with anticipations of how its units are linked to each other, how sentences' words are ordered to achieve grammaticality and send meanings.

Another source of knowledge which is considered a formal schematic knowledge is genre knowledge. Each text's genre has its own specific sentence structures and information organization. For example, an expository text or a narrative one dictates specific text structures which differ from one text type to another. The reader should acquire knowledge about these two ways of writing otherwise, his chances of comprehension decrease .Thus, the reader should be

equipped with this type of knowledge to find himself at ease while tackling texts whatever their type will be.

Hyland (1990: 14) views that the reader who possesses knowledge about the text types is contributing to his formal schemata. This type of knowledge is of great utility since it provides the reader with problem solving strategies to process each text according to what its genre dictates. Knowledge of the different existing text genres is acquired through exposure to each of these genres. Johns (1997: 21) reports that genre knowledge is enriched and enlarged through repeated experiences with texts' types. In other words, if the reader encounters several texts belonging to one genre category, he will keep in his memory characteristics of such a type without having characteristics of the remaining types. This knowledge is useful with every new experience with that given text type. Whereas, if the reader diversifies his knowledge about the text's types, his chance of being successful with new reading experiences is increased.

Meta-linguistic knowledge is another type of knowledge the reader should possess to ease his reading. This type of knowledge contributes also to one's formal schema. It is worth mentioning that the reader's possession of prior linguistic knowledge is not enough to ensure success with reading. He must be conscious of how this linguistic knowledge works. He does not only have to know how language bits go together but should be conscious of the different linguistic rules lying behind each linguistic form. Alderson (2000: 35) claims for the reader's need for possessing awareness about the nature of language. For example, knowing that the word's function is a verb and that it is put in such a tense for such and such reason. In Alderson's (op.cit.) mind, this knowledge affects the reading act. In other words, the reader is provided by a sort of map which guides and directs his reading.

To sum up, formal schema is a melting body of different types of knowledge such as word knowledge, language grammar and syntax, genre knowledge and meta-linguistic knowledge. Formal schema gets larger through time as long as the linguistic competence develops. The latter and as stated by Alderson will develop through age and experience (Alderson, 2000: 34).That is to say a child's schema gets larger as he gets older. His schema of "television" becomes large as he grows from a box which shows pictures and sends voice to an instrument of communication. He will know about how it works and how it is linked to a digital to provide a large number of channels.

3.2. Content Schema

Readers' prior knowledge about the text's content is termed content schema. The presence of this type of schema is crucial for text comprehension. A reader who is said to possess content schema about a text is the one who has knowledge about its topic or subject matter, cultural knowledge being that of the native or the target language and world knowledge. It is worth mentioning that content schema is culture specific. Thus, an FL or an SL reader will find difficulties in tackling texts in which he lacks the target culture. As formal schema, content schema is also seen as a body of different and interwoven sources of knowledge.

Knowledge about the text's topic is one component of content schema which determines comprehension or misunderstanding. If the reader knows the subject matter of the text, he is likely to find it easy to comprehend otherwise his comprehension will be hindered. Alderson (2000: 4) states that: "if one knows absolutely nothing about the topic of a text, one will find it difficult to process". Knowing nothing about the text's topic will puzzle the reader who feels himself in a city with a map in his hand but with no key to read it. A suitable example of this idea will be the following passage:

> The procedure is actually quite simple. First you arrange things into different groups. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step, otherwise you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complication can easily arise. A mistake can be expensive as well. At first the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then one never can tell. After the procedure is completed one arranges the material into different groups again. Then they can be put into their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated. However, that is part of life.
>
> (Source : Bransford & Jhonson , 1972, cited in Chandler, 1995: 7)

Someone who reads this passage will mostly encounter no difficulty in understanding its vocabulary and syntax. The problem will be in getting the text's message. The only thing the reader may understand is that the author is describing a process .The nature of this process remains ambiguous even after ending with reading. Unless the reader is provided with the following title "washing clothes", he will never understand what the text is talking about. In addition, readers need to know something about the process of washing clothes as one of their real daily experiences. This information is likely to ease their grasp of the reading passage.

Having content schema of a text dictates possessing knowledge about its cultural orientation. SL/FL readers' problems of comprehension ground partially on this criterion. Post and Rathet (1996: 12) state that: "research has demonstrated that unfamiliar religious, folklore and literary information can impede students' learning of the linguistic information used to convey the

content". That is to say, a text which exhibits cultural features like religion, social traditions unknown to the reader are likely to frustrate his reading. This component of content schema is difficult to be possessed by SL/FL readers. The reason behind this difficulty is that these readers do not belong to the community or the society they read about its culture. They are just about reading using their code of communication which is the second or the foreign language. Thus, culture is likely to be an obstacle for their comprehension. The amount of this obstacle is reduced through time with the increasing acquired amount of the target culture.

The last component of content schema is termed world knowledge. This type of knowledge makes it clear how one's world works. To understand what is meant by world knowledge we should provide Rumelhart's (1985) classical example :

"The police held up his hand the car stopped"
Rumelhart (1985; cited in Alderson, 2000: 44-45)

Alderson (2000: 44-45) explains that what is considered as world knowledge is that the car has a driver, and that when the policeman held up his hand, he was ordering the driver to stop. This information is not stated clearly, but needs to be inferred by the reader. This inference depends on the reader's knowledge of how things go in the world. That is to say, it is a matter of logical reasoning that a car has a driver. Moreover, a policeman holding up his hand at a check point is about ordering the driver to stop his car. Alderson (op. cit.) provides another scenario which exhibits a car parked on a hill departed by its owners. Because of an earthquake, the car rolls down. If the sentence "the police man held up his hand the car stopped" appears in this context, the reader should bring from his world knowledge that the policeman possesses magical power. May be the police officer is a sort of a superman who can stop a car falling from

a hill's top. It is impossible that the writer expresses all the information we managed to infer. There is no point in doing that. Thus, the reader's world knowledge helps him infer what is not stated, and therefore, eases his comprehension while reading.

Having world experience about a text's particular subject aids comprehension. A reader who practices football thus, knows about the game's rules is likely to understand a text talking about football better than someone who does not have a world experience about the game. Therefore, possessing world experience about the text's subject area is a delicate requirement to help readers' comprehension.

Script or event schema is another source of knowledge which contributes to content schema. It is defined by Woolfolk (2004: 251) as: "a schema representing the typical sequence of events in everyday situation…". The famous example, which explains what is meant by script schema is that of the restaurant script (Shank and Abelson, 1977). Having a restaurant script entails having knowledge about waiters, menus and the ordering of the meals. Someone who reports a story or an incident taking place at a restaurant will not provide the above mentioned details .They are inferred by the reader although they are not expressed explicitly (Woods, 1996: 64).

All the above mentioned types of knowledge stored as formal or content schema form the whole bulk of what is termed by cognition theorists as a prior knowledge store. The presence of these two type of schema is crucial in ensuring readers' comprehension. The absence of these types of knowledge is likely to hinder reading and cause miscomprehension or ignorance of the material to be read.

4. Schema Evolution

Davies (1995: 9) argues that schema changes: it is not stable. This change is attributed to time and experience. In other words, one's schema evolves, every time, he lives a new experience. Thus, schema cannot be thought to be unchangeable. It is subjected to modifications through time. A mental map is specified and elaborated once one gets older in age. An example of this evolution is provided in Comprehension Instruction (2002: 9) .A young child's schema of a dog is a very simple one. He keeps in his mind that the dog is a pet with white fur with which he plays. Once he gets older, his experience with dogs is enlarged. He will know about the different types of dogs having different colors, dangerous dogs, where dogs live and what they eat and how men take care of them. Therefore, the child's gradual experience in life makes him change modify and refine his dog schema. The rest of schemas evolve through that way.

5. Schema Role/ Function

Schema plays an essential role in learning and in reading being a learning task. Its function is noticed in information processing. In other words, how new information is acquired, how it is connected to the old one and how the whole is to be reorganized in memory. It plays a significant role in inference and prediction as well as it helps in ensuring information processing.

5.1. Schema as an Aid for Inference

Because the text is never fully clear, the reader needs to make inferences to understand it. There is always an amount of information which is not explicitly stated. It is for the reader to search in his schema what may turn the text more explicit. Alderson and Urquhart (1984: 54) explain that: "Schemata provide the basics for filling the gaps in a text…". Therefore, this mental home serves as a stock of the information to be used in filling what is missing in a message. NcNamara and O'Reilly (In press: 10) give an example of schema role in helping the generation of inferences: "The man jumped out of the taxi. He

hopped he would make it on time". They explain that the reader will make use of his schematic knowledge to infer that the man was in hurry to catch a flight. The absence of this schematic knowledge will make the reading task more difficult and the gaps existing in the reading message are likely not be filled.

5.2. Schema as an Aid for Anticipation / Prediction

Schematic knowledge aids anticipation. Readers will not enter to the text with no expectations. They are likely to predict what to find in the message. O'Mally and chamot (1990: 36) argue that a reader who aims at understanding a text is helped by the presence of schematic information which guides his predictions. Through prediction, the reader sets up some alternatives to be found in the text and he eliminates others. This process speeds reading via economizing the reader's time and energy. Moreover, anticipation guides the reader's focus and attention in a more selective way on what is to be found new with less focus on what is already anticipated. The absence of schematic knowledge eliminates predictions and the reader will find himself less armed while tacking the text. Therefore, schema guarantees resourses on which the reader bases his hypotheses while anticipating with the aim of approaching the text with success.

5.3. Schema as the Basis for Information Processing

Schema being the mental home of one's stored information has a crucial role to play in information processing. The reader while reading processes the new information he encounters in the text relying on what already exists in his schema. Woolfolk (2004: 239) explains that information processing entails getting an input, linking that input to what exists in one's already schema, storing that information and calling it once it is needed. Schema is enlarged, modified and elaborated each time the reader faces a new text. Facing a new input invites the reader to acquire new information. O'Malley and Chamot (1990: 17-18) provide four stages for getting a new input. The first stage is

termed selection. At this stage, the learner gets the input, which interests him and sends it to short-term memory. The second stage is called acquisition. At this stage, the learner transfers the input from short-term memory to long-term memory to be stored. The third stage is called construction. At this stage, the learner constructs links between pieces of that information in his working memory. What is stored in long-term memory helps in understanding through establishing links between the new and the old knowledge and aids in organizing the new information. The last stage is termed integration. At this stage, knowledge from long-term memory is called back to short-term memory.

It is worth mentioning to talk about elaboration, accommodation and assimilation in information processing. These are the basics for linking the new inputs to the old storage, how already existing information is retrieved and how schema evolves or changes.

Elaboration is essential and helpful in information processing. It is defined as the process by which sense or meaning is given to the new input by making connections with the already stored information (woolfolk, 2004: 252-53). In other words, the new information is modified or enlarged relying on the connection made with the already existing one. She (op. cit.) points also to the benefit of this process. First, it ensures the activation of the information in short-term memory long enough to make links with the information stored in long-term memory. The second benefit is that, it builds additional connections between the different already existing bits of information which aids recall or retrieval. Therefore, this process aids information processing, thus helps comprehension and information storage.

Accommodation is another process which helps information processing. Once the new input contradicts the already existing schematic knowledge, schema is modified and changed to correct these contradictions taking into

consideration the new information. This modification is termed accommodation (Wray, 2004: 15). One is likely to be faced with new inputs which conflict with what he used to know. Thus, he changes, replaces and modifies his already existing knowledge. Therefore, accommodation helps in information processing and schema evolution.

Another basic process is called assimilation. Wray (2004: 16) views it as the process by which new inputs are added to existing knowledge. In other words, once one finds new information which fits with what he already knows, he is likely to take it easily and adds it to the previous established one. Thus, assimilation helps to enlarge schema and expand the already existing storage.

6. Background Knowledge Activation

Not only the presence of background knowledge but also its activation which may help in enhancing reading comprehension. If the reader possesses the schematic knowledge which he does not activate before reading that knowledge will be of less importance or may be of no importance at all. This is likely to be the role of the reading teacher who is supposed to bring his learners' consciousness about the importance of their prior knowledge more importantly the activation of this knowledge. In addition, he is likely to guide them to activate their already existing stores trough a set of prior knowledge activation strategies. Therefore, the reader should activate his background knowledge in an attempt to maximize his reading comprehension gains.

6.1. Schema Activation

Schema is activated through textual cues provided by the writer in his text. These cues serve as stimulus for the reader which unconsciously brings from his repertoire already stored information that aids in the comprehension of what is new. Carrell and Eisterhold (1988: 81) argue that the process of reaching the relevant schema depends initially on the textual clues. These clues are

responsible for opening someone's stores. They, which are also called by Wilkes (1997: 46) "external inputs" exist in the text. They are generally a word or an idea which cause schema activation. These words or ideas serve as keys which open the schema and let the already existing stock to be linked and connected to the new input.

There are two main reasons for the failure of schema activation. From one angle, someone who fails to activate his schema is said to be faced by the absence of textual clues. In other words, the writer is not skilled enough to weapon his text by the necessary keys to help in opening someone's schemata. From the other angle, schema activation failure is simply coming from the reader himself. That is to say, someone who does not own any appropriate or relevant schema will not find anything to be activated. The absence of the reader's relevant schematic knowledge is the result of the writer's failure to anticipate what the reader possesses or does not possess. (Carrell and Eisterhold, 1988: 80). Therefore, activation is likely to happen once the writer gives the sufficient clues in his text to stimulate the present and the relevant background knowledge in the reader's mind.

6.2. The Process of Schema Activation

Schemata are activated through a phenomenon called "Spreading activation". Once the reader encounters a familiar input, one part of his schema is activated then this activation spreads out around what remains as relevant to the new input. Anderson (1995: 182-84) states: "Spreading activation is the proposal that activation spreads along the paths of such a network". The reader remembers one thing, which is likely to remind him of another thing and by the end finds, that all what is relevant to the new knowledge is activated. He (op. cit.) adds that the reader is not consciously responsible of this process. It is not under his total command. Spreading activation is an unconscious process which cannot be regulated or organized by the reader.

Spreading activation is not likely to happen as it may happen in a very slow manner if the reader's schematic knowledge is not interconnected. Whereas, the reader's remembering of the different parts will be easier and quicker if his schematic knowledge is interwoven. This view is defended by the connectionists who view prior knowledge as a set of interrelated concepts. Theses concepts "feed activation back to one another" (NcNamara and O'Reilly, In press: 8). The lack of this connection is likely to slow down activation thus, slow down comprehension for the simple reason that the reader will take considerable time to pass from one part to another in his schema.

The point in activation is that it helps in retrieving information from long-term memory. Anderson (1995: 181) states: "Activation determines both the probability of access to memory and the rate of access". It is probable that the reader possesses schematic knowledge stored in his long tem-memory. This knowledge needs to be activated to ensure its linkage to the new coming information. The amount of the retrieved information is determined by the amount of the activation.

7. Strategies to Activate Background Knowledge in Reading

There is a set of instructional strategies which aid readers to activate their prior knowledge, thus help their comprehension. These instructional strategies are the core of the pre-reading phase. They are varied with relatively similar importance. In other words, no strategy is superior than the other one in terms of how much it supports the reader's activation prior to reading. Some are best suited in activating readers' background knowledge for literary texts. Others are mostly helpful with informational ones. One fundamental role of these strategies is that they activate learners' prior knowledge to decide their preparedness for tackling a text.

7.1. Activating Prior Knowledge through Answering Questions

The teacher helps reading comprehension by asking questions to be answered by readers. These questions are given before readers start reading. In their attempts to find answers, the readers will be activating their prior knowledge. Once they are inside the text, the readers meet some knowledge that which was already activated. The reader realizes that he knows already, to some extent, about the text and gains confidence to concentrate on what he sees as new. This is likely to help in saving the reader's time thus, speeding reading and aids in focusing his attention to ensure deep processing of the text. The essential role to be played by these questions is that they invite the reader to guess about the text, its content, how it starts and how it ends. These questions can also be asked while reading and serve to guide the reader.

In *Effective Reading Instruction* (2006: 31), it is reported that the successful readers make use of questions while they are reading. They help them in having an idea about the writer's way of writing. Moreover, having questions in mind to be answered helps readers to state their focus. It is also a way to aid readers to connect their prior knowledge with what they encounter as new in the text. This is most likely helpful in having a deep understanding of the text at hand and in keeping readers' motivation to read.

7.2 Activating Background Knowledge through KWL Strategy

KWL strategy was elaborated by Ogle in 1987. It is a three step learning strategy. O'Malley and Chamot (1990: 170) provide a description of the application of this strategy as it was stated by Ogle. The learner is provided by a chart composed of three columns. In the first column, the learner brings what he already knows about the topic. In other words, at this first step, he is about activating his prior knowledge. In the second column, the learner asks questions about things he wants to know. In the third column, the learner and after interacting with the new input indicates what he has captured as new knowledge

to be build on what he used to have as storage. This strategy is seen as a set of strategies. The first one involves the activation of the already existing frames of knowledge. Through the second strategy, the learner focuses his attention on what he is searching to learn. In the last step, the learner uses a third strategy, which is a kind of summary to see what he has acquired as a new knowledge.

K	W	L
What I know	What I want to know	What I learnt

Table 5: Ogle's (1987) KWL Chart.

KWL Chart is basically a learning strategy as it proved to be helpful as a pre-reading strategy to activate readers' prior knowledge. Mainly the first and the second columns are very helpful in enhancing reading comprehension. The reader's schema is activated once he fills in the "K" column. He states all his pre-existing knowledge about the text's topic. The reader will be more prepared to engage in the text the moment he realizes that he knows to some extent about it. Sine he predicts what the text is going to be about, the reader gains confidence to go ahead with reading. In addition, if the reader states questions about what he wants to know from the text, his attention is likely to be focused while he is reading. Moreover, and as Ur (1996: 145) reports getting inside the text with questions in the mind is a way to set a purpose for the reading task and this consequently renders reading easier and mostly a joyful and interesting act. As important as the first and second columns, the third column in which the reader states what he has learnt, helps teachers to get an idea about the learners'

level of reading. In other words, the last step of KWL chart helps the teacher to evaluate the readers' achievements.

Reading theorists prove that KWL chart is effective in activating background knowledge, thus enhancing reading comprehension. It helps readers to be strategic while reading to benefit the maximum from this act. More precisely, it proves to be of a great help while readers tackle informational texts more than narrative ones. Tarquin and Walker (1997: 58) claim that KWL strategy is best suited for expository texts. Teachers are given the chance to follow the reading act from the very first steps to the final evaluations. Above all, readers themselves are given the opportunity to reflect on what they have in their minds and on what they have gained through reading. Jablon and Wilkinson (2006: 2) argue that KWL strategy helps learners to realize that their existing knowledge and interest are of importance while they are reading. Thus, readers will keep in their minds that these two factors are solutions to their failure while reading; consequently they will value the strategy and turn to use it individually outside classrooms without their teachers' guidance.

7.3. Activating Prior Knowledge through Prediction

Prediction and anticipation which are used interchangeably, are useful strategies to activate readers' prior knowledge before and while reading. Manya and DeLeew (1965: 118) state that: "anticipation means that the readers' mind is ahead of his reading, preparing the way.". In other words, the reader, before and while he is reading, puts hypotheses or states guesses in an attempt to make himself ready to meet confirmations of these hypotheses as he starts and proceeds with reading.

The source of readers' prediction is their prior knowledge. Once the reader hypothesizes about what he is going to find in the text, he is about activating and bringing to the surface his already existing knowledge. This knowledge, in the

form of alternatives, is confirmed or disconfirmed thus, saved and enlarged or replaced and modified. Prediction is not likely to happen if the reader's storage contains no information about the text's topic.

Prediction ensures the reader's active involvement in reading. He never relies on the text alone but brings from his own storage and establishes links to maximize comprehension. Through this strategy, the reader will be best encouraged to read the text. Dutta (1994: 39) suggests that the reading teachers should help learners to develop positive response to the text they are about to read which aids in increasing their will to read it. This help consists of providing them with stimulating activities aiming at creating a mood of receptivity.

Readers are best warmed to get inside the text through pre-reading exercises. In these exercises, teachers rely on some linguistic and visual (paralinguistic) elements. These elements are seen as warmers which stimulate readers to pour out their predictions. In order to go ahead, readers need to make use of "their experience of the world, as well as their imagination and intelligence" (Dutta, 1994: 39). He (op.cit.) cites some of the elements which can be used by readers to predict, namely the title of the text, illustrations, warmers and key words.

The title is one important element which aids prediction and thus the activation of background knowledge. It is usually the summary of what the text is about. It is most often the key which opens the door to the text. Dutta (1994: 39-40) argues that the title helps the reader to construct expectations about the text's theme or topic. He sees that a teacher who provides his learner with the text's title with no text is giving him a useful exercise to activate his prior knowledge to be prepared to engage in reading.

The title is not always a source of successful predictions of the text's theme. It may be simply a misleading factor which causes the production of wrong anticipations. It is usually the case with metaphoric titles in literary texts. The title may explicitly indicate the text's theme; consequently, helps in activating prior knowledge. Thus, providing successful predictions which foster comprehension. As, it may be implicitly stated. Thus, instead of helping to activate the right schema, it activates irrelevant ones. Then, the reader is likely to produce false predictions which slow down reading and hinder comprehension.

Readers' success in using the title as a strategy to activate prior knowledge and prediction is determined by the amount of his prior knowledge storage, intelligence and imagination. Implicitly stated titles are difficult for readers of second and foreign languages. They request particularly cultural competence which is of relative mastering by them. Alves and Silveira (1991: 22) see that foreign language readers may use their native language to go with difficult predictions. It is important to make use of the title to activate prior knowledge whatever the language to be used although using the native language in a foreign language-learning environment is the final resort.

Another element which is used in prediction to activate readers' prior knowledge is the key words. The type of vocabulary or lexis which is used by the author in his text, is likely to reflect some aspects of what exists in it. Some words in a text are seen as key words. That is to say, they help to anticipate the text's theme. Dutta (1994: 40) argues that these key words function as clues to the text's meaning. Sine they provide an idea about the text's world, the teacher may make use of them to help learners anticipate what is there in it. He may provide readers with a list of the text's key words and ask them to indicate what they imply as main meanings. This is likely to be a helpful exercise which aids the activation of prior knowledge.

Dutta (1994: 40) suggests warmers as another element which helps readers' prediction. In his mind, warmers are proverbs or quotations which are linked to the text's theme. They are given to readers before they start reading as a way of inviting them to discuss the text's subject. This task is of importance because it brings to the surface the readers' already stored information. Some are likely to know about the warmers content but others do not. Therefore, through this strategy, readers know about each other storage and they end up by exchanging and sharing a wider store, which helps in better understating the text.

Illustrations are also seen by Dutta (1994: 40) as useful elements used in prediction exercises. A text is sometimes accompanied by illustrations. These illustrations are, usually, in the form of pictures representing the main idea of the text or events to take place in a story. Readers and through these pictures make their guesses about what they are likely to find in the text. Pictures, as titles may be also, sometimes, misleading and thus lead readers to produce wrong guesses. That is to say, pictures may help as they may hinder prediction.

7.4. Activating Prior Knowledge through Debate and Discussion

Debate and discussion is one strategy which activates readers' prior knowledge. Readers, and before, engaging in the text's world go into a class or a group discussion about its theme. This is a very useful strategy which helps the readers to exchange their stocks of knowledge. In *Effective Reading Instruction* (2006: 31), it is claimed that, through debate, one reader who has little experience with the text's topic will probably gain chances to enlarge his schema and be best prepared to read it. Therefore, every reader will be about activating his schemas, and by the way, will be benefiting from the other readers' experiences to enlarge them. As a final conclusion of debate, the majority of the group will engage in reading with an activated prior knowledge and a high percentage to be successful with the text.

Ideas to be developed through debate may be of a direct relevance to the text as they can be of no relevance. Not all the ideas center on the text's topic. In other words, many deviations may occur and the reader is to be far away from what he is going to encounter. In spite of these deviations, debate is still to have an essential role to play as it is argued by Nuttall (1982: 138) "debating is a good way of involving the student with the topic and exposing him to different points of view.". The reader is likely, and after being activated, to read with an internal will to go on that. That is to say, debate activates the reader, simulates him and invites his intrinsic motivation. This is a way of expecting an effective reading process.

7.5. Activating Prior Knowledge through Field Experience

Field experience aids readers' activation of their prior knowledge. As a pre-reading task, readers are provided by the opportunity to experience what they are going to meet in the text as a theme. For example, if they are to read a text about a roman emperor, their visit to the museum will be of a great help to activate their prior knowledge. This field experience is likely to provide them also with new knowledge most importantly new vocabularies.

The reader will be about discovering the world of the text using all his senses. He brings from his already stored information to provide interpretations to what he sees, hears smells or feels. Thus in a field trip, readers are exposed to the world of the text in reality. Their motivation to engage in reading the text will be enhanced. In addition, their storage about the text's theme becomes larger and they are likely to be well prepared to achieve comprehension. Blachowicz and Obrochta (2005: 264) argue for the utility of field experience when they state "use of senses, particularly of visualization, is an important activity for engagement and for focusing attention in learning".

7.6. Activating Prior Knowledge through Semantic Mapping

Dubin and Bycina (1991: 202) refer to semantic mapping as a word-association activity. As a first step of this strategy, readers pour out all what they have as ideas related to the text's topic. These ideas are recorded on the board. As a third step, what is written on the board is arranged in the form of a map, a visual organizer or a graphic organizer with the aim of linking ideas to each other and defining the nature of connections existing between them. This strategy proves to be helpful in activating prior knowledge and in enhancing reading comprehension. The first step of the strategy is essentially a prior knowledge activation task. Readers attempt to derive from their existing stores all what is linked to the text's topic. Then the construction of visual organizers helps the readers to reflect on their prior knowledge and organize it into their existing schemas. Tarquin and Walker (1997: XI) attempt to define and to point to the importance of the construction of the visual organizers. They state: "They are visual representations of concepts and ideas. When used in classrooms, they provide students with tools to make thought and organization processes visible. They serve as organizational frameworks to promote thinking and language development".

In other words, semantic mapping aids readers to make their organization first on the board before going on that in their minds. This is likely to help them in information processing and in increasing their language gains as it is argued by Zaid (1995: 6) "Students who use semantic mapping manifest considerable improvement in reading comprehension, written expression and vocabulary development". The reader, and through the semantic map, is introduced to new vocabulary, most probably met in the text. Moreover, ideas and concepts are mentioned and linked to each other. Consequently, the process of digesting the text is likely to be easier.

A semantic map is the contribution of all readers with the teacher's guidance. The teacher writes a key word which sums up the text topic. Then, readers bring their ideas to be registered. As a final stage, these ideas are organized and categorized to form a map. Zaid (1995: 7) provides an example of a pre-reading semantic map about a text which centers around Muslim carpets: this map shows the ideas provided by readers and the way they are organized with the help of the teacher.

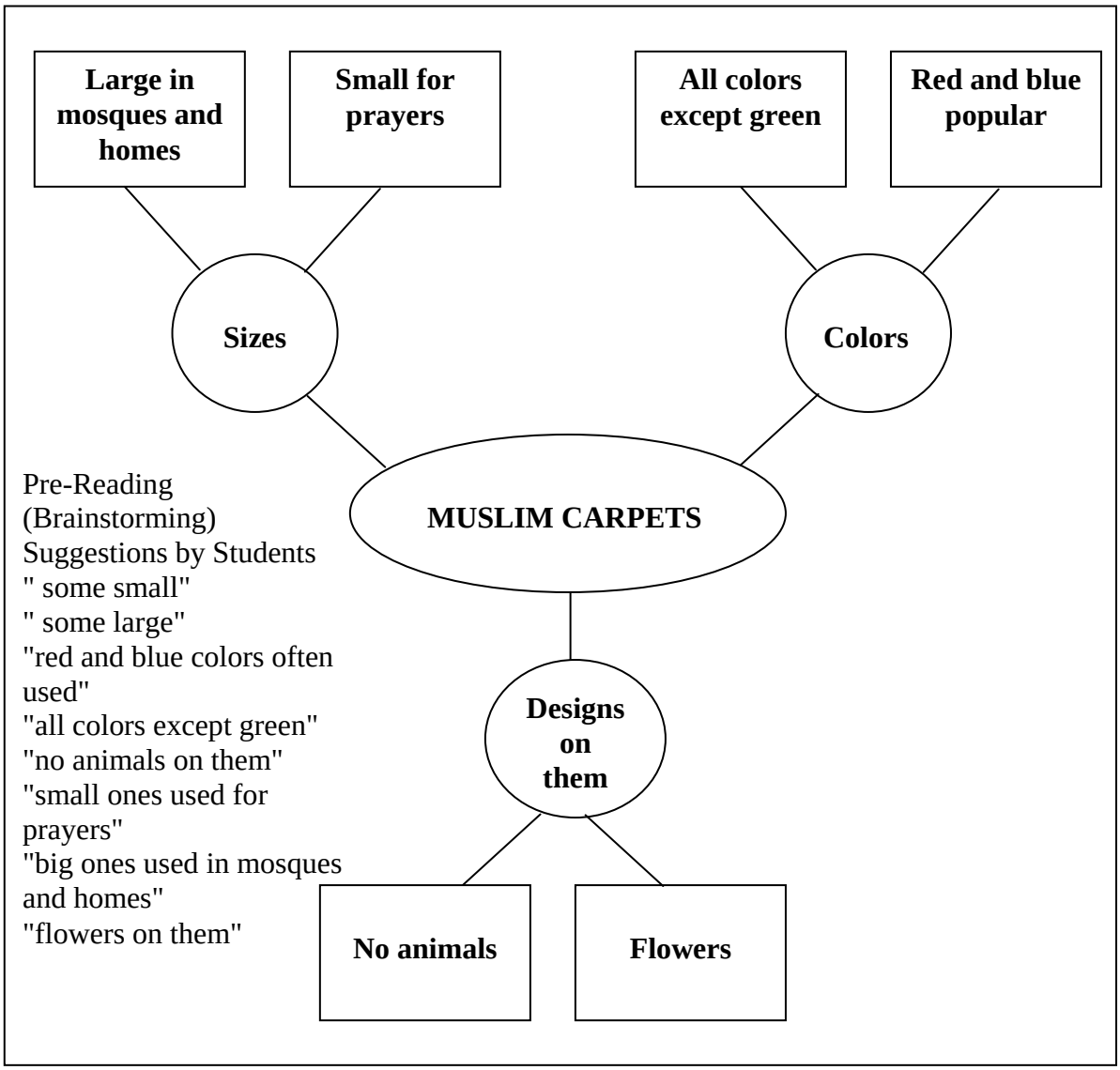


Figure 2: An Example of a Pre-Reading Semantic Map.

7.7. Activating Prior knowledge through Advance Organizers

Advance organizers aid in activating pre-existing knowledge and enhancing reading comprehension. Anderson and Pearson (1988: 41) suppose that in cases where texts are implicit and readers face problems of comprehension an advance organizer is advised. A text, which is not explicit, is likely to put the reader in trouble. Because he will not know what of his prior knowledge is relevant to the text's topic, his comprehension is hindered or may be completely blocked. An advance organizer which is given to the reader before he starts reading to help him build an understanding of the text. This statement is most likely helpful to show the reader which aspects of his pre-existing stores are brought to be activated to help in making what is implicit digestible. Therefore, an advance organizer is a key which opens the way to understand and learn from the text.

7.8. Activating Prior Knowledge through Previewing

Previewing proves also to be a useful pre-reading activity to activate prior knowledge. The text's title, layout and illustrations are of an essential importance in this pre-reading activity. The reader is asked to pass by them quickly and to produce guesses about the text's content. They serve as a kind of stimulus which invites the readers' relevant prior knowledge to be at the surface to aid them in processing the text.

Previewing is, usually, used as a pre-reading activity with literary texts. The teacher is best helping readers' comprehension if he provides them with a previewing exercise. If the reader reads the author's biography before reading a text, he is about preparing the way to his comprehension. The author's life is reflected on his themes and style. Therefore, biographical information helps readers anticipate about the world of the text. In addition, pre-readings about the text setting will help to put the text in its context. If the reader is reading a black fiction novel, some historical readings on slavery in USA, racism and

segregation between the white and the black and a general geographical vision of the country are likely to equip him with knowledge to be used while reading the text.

7.9. Activating Prior Knowledge through Brainstorming

Brainstorming is another strategy which is said to be helpful in activating prior knowledge. It is mainly the staring point of most of the pre-reading prior knowledge activation strategies. Through this strategy, the reader is likely to bring all what is in his brain which he may think it is linked to the text's topic. This strategy is basically at the core of the process of activating the readers' already existing schemas.

7.9.1 Definition

In spite of the differing views around the utility of brainstorming, it proves to be helpful in activating prior knowledge. The word brainstorming holds what the process entails. From this lexical term, we understand that there is a kind of storm which comes from the brain. The question to be asked here is what is this storm or what it brings with it? Feather (2004: 82) provides an answer for this question once she states: "during a brainstorming session, information that is already known is brought forward and becomes more accessible". In other words, a reader in a brainstorming session brings from his brain ideas he already knows about the subject matter of the text. This is in fact what is called prior knowledge activation. Since these ideas are no longer hidden in an internal store, they are likely to be used easily to facilitate the reading process and this is what we come to call the use of already activated knowledge. Thus, brainstorming is at the core of activating prior knowledge.

The process of brainstorming entails as it was stated by Ur (1996: 2) a "simple pooling of ideas". That it is to say, the reader will jot down ideas freely. As a pre-reading exercise the teacher announces the topic of the text to be read

and records it on the board. Readers start brainstorming about it. They will make use of their already existing schemas. Isaksen (1998: 3) claims that there are various meanings for the term brainstorming. It is seen as a meeting where people are together in a debate attempting to bring some ideas. Others consider brainstorming as synonymous with idea generation. That is to say, once new ideas are needed a brainstorming session is the advice. This activity is also a way to be creative in whatever matter. Moreover, it serves as pathway to find solutions to problems in whatever domain. That is to say, a group who is facing difficulties in managing their work are likely to settle their problems through organizing a brainstorming session. As brainstorming is valued by some being a tool to bring to them success, it is seen simply as a pastime activity by others. They see no benefit in it and consider it as just a waste of time. The figure bellow illustrates a simple brainstorming activity about the word tree (Adopted from Ur, 1996: 68).

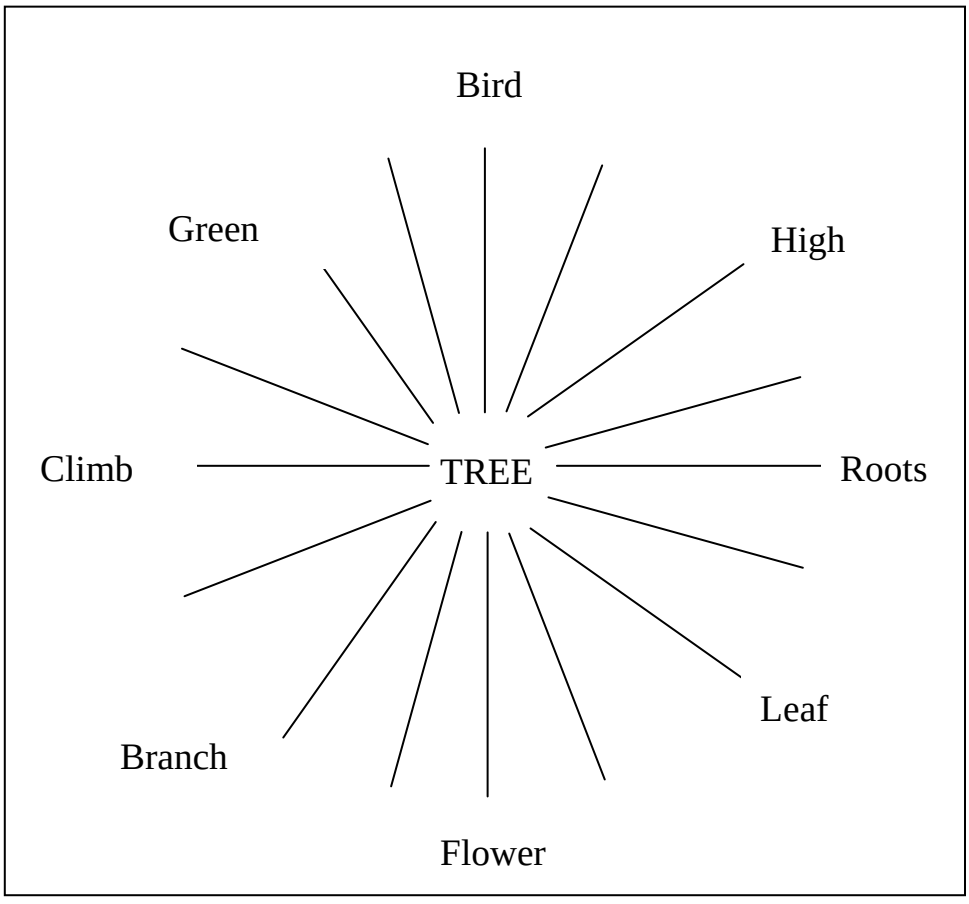


Figure 3: An Example of a Brainstorming about the Word "Tree".

7.9.2 Rules of Brainstorming

If the teacher and his readers respect certain rules of brainstorming, they are likely to ensure considerable gains. These rules are crucial for successful brainstorming which means that this process is not haphazard, but apply to a certain organization. Osborn outlined these rules in 1953 as guidelines for any brainstorming session. They are as follows:

1. Criticism is ruled out. Adverse judgment of ideas must be withheld until later. The purpose of the brainstorming session is the generation of many, varied and unusual options.
2. Freewheeling is welcomed. The wilder the idea, the better; it is easier to tame down than to think up. Since criticism is temporarily ruled out, it is acceptable and desired that really wild and unusual ideas are shared.
3. Quantity is wanted. The greater the number of ideas, the greater the like hood of useful ideas.
4. Combination and improvement are sought. In addition to contributing ideas of their own, participant should suggest how the ideas of others can be turned into their ideas; or how two or more ideas can be joined into still another idea.

Osborn (1953; cited in, Isaksen, 1998: 4).

Brainstormed ideas should be postponed. Neither the teacher nor the readers are permitted to judge the poured out ideas. None is likely to consider one idea as being brilliant or as being a silly one. All ideas are of equal importance. Judgment is better fruitful after ending with brainstorming. If readers go on judging each other ideas, some are likely to be inhibited. Thus, idea will be minimized and variety will be absent. This idea was also emphasized by Chung (2004: 28) who argues that it is a basic principle not to comment on others' ideas in brainstorming. In his mind, participants find

themselves in a certain atmosphere with no sense of freedom but with a kind of inhibition to utter deliberately whatever comes to their minds.

All ideas are accepted even the most unusual ones. Readers bring out various ideas spontaneously with out thinking what is important or what is of less importance or what is may be of no importance at all. Feathers (2004: 84) suggests that all what is brought by participants is accepted even it is seen as mistaken. Wrong and right ideas are of equal importance in the sense that wrong information shows misunderstanding. That is to say, when readers start reading they meet information in the text which contradicts with what they have already brainstormed thus, they will work on correcting what is wrong.

What is important in brainstorming is to bring as much as possible ideas. In other words, readers must invite from their already existing stores so many ideas, no importance for their quality but for their quantity. Gains from brainstorming are maximized once too many ideas are brought to the surface. That is to say, as long as we have vast brainstormed information, our chances to fall in useful ideas are greater.

The last rule of brainstorming is seen as obligatory. Readers while brainstorming are likely to base their ideas on others' already brainstormed ones. Therefore, there will be a kind of evolution in the form of chain. A member may be stimulated by an idea of another to pour out a new one. Another member, may combine half an idea with someone else ideas to compose other ones. Some may propose ideas to be modified or even corrected by others. All in all and as it is argued by Feathers (2004: 84) "Sharing ideas with a group or the whole class is important because one student's thoughts trigger others to bring to a conscious level information that may have been buried".

Respecting these four guidelines is likely to guarantee benefits from brainstorming. Using this strategy prior to reading a text proves to show important and worth mentioning effects on prior knowledge activation which is likely to maximize scores in reading comprehension. This is seen as the most essential benefit in addition to other factors which play on readers' psychology to be prepared to engage in reading.

7.9.3. Benefits of Brainstorming Prior to Reading a Text

One important and basic benefit of brainstorming is that it activates readers' prior knowledge. The moment the teacher announces the subject of the text to be read, readers are likely to open their stores and start jotting down what they think is of connection to the topic. All what is brainstormed will be used to form guesses about what is to be met in the text as it is stated by Feather (2004: 82) "brainstorming provides plenty of materials for making prediction". Moreover, the reader is likely and through this strategy, to be conscious about what he knows about a given text's topic before he goes on reading it. Feather (2004: 84) argues that what is recorded before readers' eyes as ideas or vocabulary items aids them to remember what was said, to build on it, correct or modify it themselves. In addition, brainstorming helps to activate reader's schema globally in the sense that, they will know in advance about the ideas, vocabulary, culture, grammatical features and genre structures to be most probably met in the text to be read.

Brainstorming proves also to be helpful in ensuring readers' engagement. It helps to stimulate readers as it invites their motivation. The reason behind this is that they have freedom to express themselves openly with no risk to be blocked as it is argued by Bligh (2000: 220) "it aims to unblock repressed thoughts". In other words, the readers are provided with courage to utter what they fear to bring out. Moreover, this strategy is based on group participation which ensures interaction between members. This interaction creates an

enthusiastic atmosphere which helps in bringing or increasing readers' interest to read. In addition, brainstorming states a purpose for reading. Feathers (2004: 83) explains that after recording the brainstormed ideas in a list, readers start reading and verifying whether what was brainstormed is correct or wrong. Thus, they will be reading with a purpose in mind. The latter aids basically in focusing attention, speeding up reading and enhancing reading comprehension.

7.9.4. Types of Brainstorming

There are two types of brainstorming: individual and group brainstorming. One reader may go on brainstorming by his own. Prior to reading a text, he gets its title and tries to jot down on a paper all his previous acquired knowledge about the text's topic. He may decide to share those ideas with others who are reading the same text. In this case, brainstorming turns to be an interactive group activity through which the reader shares their ideas. In a group brainstorming, their must be a head who controls, organizes and guides the process. In a classroom environment, the teacher is the one to play this role.

7.9.5 The Role of the Teacher in Brainstorming

The teacher plays the role of a guide or facilitator in a brainstorming activity prior to reading a text. He is the one who puts on the board the key item which invites readers' ideas. He is also the one to write these ideas on the board. Along this process, he manages to stimulate readers. Isaksen (1998: 5) states that the facilitator in a brainstorming session should own the ability to ask the questions which trigger the readers' minds. He will be orienting readers in an indirect way to the core of the text's topic. The teacher never dictates on readers his own ideas but leads them to bring their own productions. Moreover, he tries not to judge their ideas even by his gestures and facial expressions. Thus, he keeps discipline and prevents any form of anarchy or conflicts which may cause waste of time and failure to create a joyful atmosphere.

Brainstorming and through this brief review, seems be a worthy strategy to be used in our field work. It is rather a practical strategy which does not consume too much time and lets much of the reading session time to the reading process itself. It is seen as a promising strategy in activating prior knowledge to enhance reading comprehension which we aim to prove through the scores to be gained by readers once they are activated through brainstorming. The four rules of brainstorming add to its usefulness. They provide readers with psychological readiness to go on reading with confidence and no fear. Thus, in our field work we will be about testing its utility as a strategy to activate prior knowledge and to see how much this has effects on the readers' reading comprehension achievements.

Conclusion

The idea of prior knowledge activation has solid grounds in cognitive science. Schema theory is the strong argument which provides insights into the operation of information processing. The latter happens by linking the new information to the already existing one. Not only the presence of pre-established stores which is recognized to be of importance but the activation of those stores is of the most importance.

Prior knowledge activation strategies were under the scope of many empirical studies. They proved to be helpful in activating readers' prior knowledge. It is usually the role of the reading teacher to determine what kind of strategy to use in his reading session according to the text type he is introducing. These strategies are treated equally in terms of importance and utility. It was a difficult task to choose one over the remaining strategies to use it in our fieldwork. They are initially developed to serve as pre-reading activities although some of them can suit in the while-reading and post-reading phases.

Activating the reader's prior knowledge prior to reading a text is said to enhance his comprehension. This claim is supported by many reading theorists. It is, in fact, what we are hypothesizing through this work of research aiming to confirm the established expectations. The hypothesis is defended literally but needs to be confirmed statistically. This is likely to be the focus of the coming chapter.

Chapter Three

The Research Design

Introduction

The present study is conducted to investigate the degree of the impact of prior knowledge activation through brainstorming in enhancing learners' reading comprehension. In other words, prior knowledge activation is manipulated to see its effect on learners' achievement in understanding the reading selections.

This investigation will be carried out through an experiment divided into: Part One and Part Two. In Part One, participants in the experiment; Group1 and Grpou2 work on the first reading selection. In this part, the experimental group is Group2 and the control one is Group1. The experimental group; Group2 receives the experiment's treatment. In Part Two, the experiment's treatment shifts to Group1 and Group 2 turns to be the control One. Here, learners work on the second reading selection. In both parts of the experiment, the groups' reading comprehension is tested using the multiple-choice formats.

The t-test; statistical test, is used to analyze the results obtained in the experiment. This test is conducted on both parts of the experiment's obtained scores in the reading comprehension tests. It is the only resort to derive conclusions which confirm or disconfirm the study stated hypothesis.

1. Design and Methodology

Success of any experimental work necessitates a good design. The researcher should prepare the requirements of his experiment before he starts its conduction. First, he needs to define accurately the hypothesis variables. In other words, he should know which variable he is going to manipulate using the experiment's treatment and how he is going to test the effects of this manipulation on the remaining variable. Second, the researcher should decide about the experiment's target population and the sample which will represent it. Third, the material to be used should be prepared in advance making sure it fits

the learners' intellectual level. This preparation is likely to give a good design of the experiment which helps in conducting it with no methodological problems.

1.1. Overview of the Method

The present study is designed to investigate the degree of readers' comprehension if their prior knowledge is activated before reading a text. Readers' prior knowledge activation is ensured through the prior knowledge activation strategy called brainstorming. The latter stands as an example for the remaining prior knowledge activation strategies. The aim of the study is to give importance to activating readers' already existing knowledge as an aid to enhance their reading comprehension. Brainstorming is the means to reach such an aim.

The investigation is conducted through a cross-sectional experimental design. Through this experiment, some readers' prior knowledge about a given text is activated through brainstorming, their reading comprehension of that text is tested and their gained scores are compared with those of the ones who received no prior knowledge activation. The group which receives prior knowledge activation instruction (brainstorming) serves as the experimental group. The other group will be the control one.

The experiment is divided into two parts. This division is based on the number of texts we make use of. In the first part (Part One), readers are experimented making use of Text (1) (See appendix I).In the second part (Part Two), readers work on Text (2) (See appendix II).Text (1) and Text (2) are of the same genre and have the same level of difficulty which suits readers' level but, they differ in the topic dealt with. The difference between Part One and Part Two is in the role played by the groups. The group which serves as an experimental group in Part One will be the control one in Part Two. That is to

say, prior knowledge activation through brainstorming (the treatment) switches off from one group to the other from Part One to Part Two.

	Gr1	**Gr2**
Part One	Control	Experimental
Part Two	Experimental	Control

Table 6: Roles of Gr1 and Gr2 in the Two Parts of the Experiment

1.2. The Target Population

According to Marczyk et al. (2005: 18), the term population refers to the sum of individuals who are of interest to the researcher. These individuals are of the same type .Through an experiment, the researcher works with a sub-set of the target population aiming at generalizing the findings to the whole sum. The choice of the population is not a random one. It is based on the researcher's hypothesis and the aim of the study.

The population to which we wish to generalize the results of the experiment is second-year English language learners at the teachers' training school at Constantine (ENS). During the 2006-2007 academic year, a total of 130 student are enrolled as second year English language learners at the ENS. At this level, learners receive a module called "Reading Techniques". Through this module, readers are given the chance to read. Moreover, their teachers make them practice the different techniques which aid in mastering the reading skill. Three hours per-week is the time devoted for this module. All these learners have studied English as a foreign language for six years: two years at the elementary level, three years at the secondary level and one year at the ENS.

Choosing second-year English language learners at the ENS as a target population is not a random choice. First, students at the university (English

Department) do not have a reading module which is concerned precisely with the reading skill. They do few readings related to other modules with no standing reading module by its own. Thus, the first advantage is that learners at the ENS were introduced to the reading skill in their first year. Therefore, their reading proficiency is likely to be higher than that of those at the university. For students at the ENS, reading texts and then answering comprehensions questions on them is a very common class task. In contrast, students at the university are likely to be hostile to this type of class activities which may affect negatively the results of our experiment. The second advantage is linked to the learner's language proficiency. That is to say, a second-year level (post-intermediate / upper-intermediate level) ensures better language proficiency than a first year level which aids in conducting the experiment with less linguistic problems. Higher levels of language and reading proficiency are not suitable for our experiment. At these levels, readers have good reading achievements. Thus, we will have little chance to show clearly the significance of our research. The third advantage is a rather psychological one. Students at the second-year level are more psychologically stable. They are more accustomed to the school's discipline as they tend to show signs of engagement in their lectures and a good integration among class peers.

1.3. The Sample

The sample is a sub-set selected from a target population. The researcher cannot conduct his investigation on the whole population for some logical reasons. Marczyk et al. (2005) argue for the necessity of choosing a representative group which exhibits the general characteristics of the whole population of interest. It is not practical to work with every member. Factors such as time, money, resources, energy…are the main reasons which oblige any researcher to work with a sample. If something is true with the sample, it is to be also true with the population. In other words, the researcher generalizes the results gained with the sample to the whole population.

It is a rule of thumb among researchers to consider the fifth of the population (1/5) as the size of the sample. Our target population is 130 second-year student at the ENS. Thus, our sample is 26 students who are randomly selected. The sample is divided into two groups: group one (Gr1) and group two (Gr2). Members of Gr1 and Gr2 are randomly assigned. They will be members of the experimental and the control groups of the experiment.

Members of the sample are randomly selected and assigned. Miller (1975) explains that the reason behind random selection of the sample is to give equal chances for every member in it to be chosen from the population. Moreover, it helps in ensuring that our sample is a nonbiased one. Furthermore, members chosen for the experimental group have equal chances for being chosen for the control one.

1.4. The Participants

Students who will participate in our experiment are the whole number of the sample. They are 26 second year English language learners at the ENS which are randomly selected from the target population. The sample is divided into two groups: Gr1 and Gr2. Each group consists of 13 student randomly assigned. They were not informed that they are subjects in a work of research to avoid the biasing of the experiment's results. Subjects were in a usual reading session atmosphere in which they are supposed to read a passage and to work on some reading comprehension exercises.

1.5. The Materials

The material used in the experiment is adopted from *A Course in Reading and Vocabulary for Upper-Intermediate and More Advanced Students* (See Mosback and V.Mosback, 1976).Two informational texts are chosen to be followed by comprehension questions namely multiple-choice questions. (See appendix I and II).

The texts chosen for the experiment are informational ones. The reason behind choosing this particular text genre and not a narrative one is the prior knowledge activation strategy chosen for the experiment. In other words, reading theorists argue that brainstorming best activates readers' prior knowledge of informational /expository texts. Thus, our choice of brainstorming as a strategy to activate readers' prior knowledge before reading should match with the text genre it best suits. Moreover, the context of our study which is that of second-year foreign language learners at the ENS favors the choice of the informational text. That is to say, learners will not be confronted with the cultural heritage of the target language for the simple reason that the texts are not culture specific. Furthermore, the chosen texts are not domain specific. Thus, no technical terminology is encountered in the text. Learners will read texts centering on the general daily information.

Reading comprehension questions which follow the text are the multiple-choice formats: this exercise aims at testing the readers' comprehension of the reading passage. The reason behind choosing this type of comprehension questions is that it is recognized to be the most efficient tool for testing reading comprehension. In a multiple-choice exercise readers are provided with choices of the correct answer. In other words, the reader is given a question statement and a number of the answer options among which one option is correct and the remaining options are wrong. The reader's choice of the correct answer may be the result of a successful understanding of the reading passage as it may be a matter of chance. Thus, success with the multiple-choice exercise does not in all cases reflect the reader's comprehension of the text. In spite of this disadvantage, the multiple-choice questions are widely used by researchers to test reading comprehension. They are easy to mark as they ensure the marker's objectivity.

1.5.1. Material One

Material one (See appendix I) consists of the reading passage: Text (1) entitled "money". It is about 500 words long. This text is an informative / expository one. It exhibits information about money in the past and nowadays. The reader is exposed to the different types of money and the various shapes it takes. The readers are likely to possess prior knowledge about the text's topic. Because money is one important element in their lives, the readers are said to be successful in pouring out ideas about it. It is something which they make use of in their daily lives. The text does not include technical words or any culture specific ideas. This aids foreign language readers in tackling the text and helps them in achieving comprehension.

Material one includes also a multiple-choice exercise. This exercise is composed of 10 questions each question with 4 options of the right answer. These questions center on the text's ideas. In other words, they serve to reflect the reader's understanding of the text's meaning. The instruction for the exercise is the following: "select the answer which is most accurate according to the information given in the passage". Thus, the reader is supposed to read the question statement and to choose one option among the four he is provided with according to how he has understood the reading passage.

1.5.2. Material Two

Material two (See appendix II) is the reading passage: Text (2) entitled "To be or not to be vegetarian". It is of the same length with the first reading passage (Approximately 500 word). Moreover, it is of the same genre (Informational text).It informs readers about people who feed only on vegetables stating advantages and disadvantages of being a vegetarian. Readers are said to have knowledge about the text's topic. That is to say, they are said to have knowledge about the difference between the food coming from animals and that

coming from vegetables. The text's vocabulary is likely to be familiar to readers since it includes no technical terminology and no cultural information.

Material two includes also a reading comprehension exercise which is the multiple-choice questions. These questions aim at testing readers' comprehension of the text's ideas. The reader's choice of the correct answer is likely to reflect his understanding of the text. Although a correct or a wrong answer may be the result of chance and not that of a sure understanding, we are going to trust readers' answers judging them as conclusions of comprehending the text. The exercise has the same form and the same instruction just like that of the first exercise which followed the first text. That is to say, 10 questions each with four options for the right answer. The reader in the exercise selects the option he thinks it is right according to his understanding of the text.

2. Research Questions

This work of research is designed to answer a set of questions. These questions led us to make a prediction through stating the study's hypothesis which we aim at confirming. Here are the questions which stimulated the conduction of this study:

Is readers' prior knowledge about a text an effective factor in their reading comprehension achievements?

Is the presence of the readers' prior knowledge about a text of importance in increasing their reading comprehension?

Does the absence of the readers' prior knowledge about a text affect negatively their reading comprehension?

Is the presence of the readers' prior knowledge about a text without its activation sufficient in helping them to understand it?

Can teachers' aid readers activate their prior knowledge about a text prior to reading it?

Do readers who activate their prior knowledge prior to reading a text understand it better than those who do not activate their prior knowledge?

Is brainstorming an effective prior knowledge activation strategy for the informational texts?

Do second year learners at the ENS whom their prior knowledge is activated prior to reading an informational text through brainstorming achieve better in a reading comprehension test than those whom their prior knowledge is not activated?

The above-mentioned questions lead us to state the following hypothesis: the activation of ENS upper-intermediate foreign language learner' prior knowledge of the informational texts through brainstorming is likely to enhance their reading comprehension. Through out this study we will be attempting to confirm the truth of this prediction. Confirming this hypothesis will help in answering the questions which stimulated our study.

3. Procedure

The experiment is divided into two parts: Part One and Part Two. In Part One, readers work on Text (1) and in Part Two they work on Text (2).In the first part of the experiment, Gr1 of the sample is the control group and Gr2 stands as the experimental one. In Part Two, Gr1 and Gr2 exchange roles. In other words, Gr1 serves as the experimental group and Gr2 plays the role of the control one. In both parts of the experiment, the group which serves as the experimental group receives the treatment whereas the one which stands as the control group receives no treatment. The treatment and the type of testing are the same in the two parts of the experiment.

The two parts of the experiment have the same organization. In Part One, the students who are members of the experimental group (Gr2) brainstorm about Text (1).Their brainstorming formed the chart presented in appendix III. Then,

students go on reading the text silently for a period of time. Finally, students are asked to answer comprehension questions namely 10 multiple-choice items. The control group (Gr1) members do not brainstorm about Text (1) and go directly on reading it. After ending with reading, they answer the same multiple-choice questions of the experimental group. In part Two, the same procedure is followed. The only difference is in the text and the role played by the groups. That is to say, in Part Two students work on Text (2) and Gr1 is the experimental group which brainstorms about the text before reading it giving the chart presented in appendix IV. As in Part One, students, after brainstorming, read the text and answer 10 multiple-choice items. Whereas, students who are members of the control group; Gr2 read directly Text (2) without brainstorming and answer the 10 multiple- choice questions.

3.1. The Treatment

The treatment we will apply in the present study is a strategy of prior knowledge activation called brainstorming. Members of the experimental groups [group (2) in Part One and group (1) in Part Two] are the ones which receive this treatment**.** They are supposed to go on brainstorming about the text before reading it. That is to say, readers pour out idea they already know about the text before they start reading it. This is done with the teacher's help who stands as a facilitator of this strategy. In other words, the teacher aids readers to bring out their previous stores to the surface. First, he states the topic readers will brainstorm about through writing it on the blackboard. Second, he guides the brainstorming session by asking stimulating questions which may help readers remember old stored information. Third, the teacher supervises the flow of readers' ideas while they are brainstorming. That is to say, he tries not to let their ideas be out of the topic they are brainstorming about so that they do not run the risk of wasting time, energy and not to activate the wrong schemas which may lead to hindering the text's comprehension.

3.2. Conditions of the Experiment

The experiment is done under certain conditions. These conditions concern timing, the type of reading and text removal while answering comprehension questions. These conditions are important to ensure the experiment's success and to avoid the biasing of its results.

The time of the reading session in the experiment is divided among the different activities done by the readers. The time devoted for each session is an hour and a half. This latter is divided between brainstorming, reading the texts and answering comprehension questions. Each activity takes the time it needs to maximize its success. Here is the reading session's time division we applied in the experiment:

The reading session activities	**Division of the session time 90 m**
Brainstorming	10 – 15 m
Reading	10 m
Answering MCQ	10 m
Other comprehension activities	50-55 m

Table 7: The Reading Session's Time Division

Readers of both groups; the experimental and the control one in both parts; Part One and Part Two, read in a silent way. This type of reading is the suitable way for the experiment. Through this type of reading, students read the two texts without uttering them. That is to say, they do not produce voice or even murmur with their two lips while reading. Readers are likely to focus on understanding the meanings expressed through the two texts rather than wasting time on pronouncing accurately the texts' words. Reading in a silent way is likely also to speed reading hence save the reading time. Because it establishes a

silent way of work, silent reading helps in keeping class discipline by avoiding noise.

Readers answer the multiple-choice exercise without being back into the text. In other words, the text is directly removed the moment students end up with its reading. They are not allowed to go into the text for the sake of checking their answers. Readers have no chance to copy from it. They find themselves with the text meanings which remained in their memories. Their comprehension of those meanings is the only thing which aids in answering the exercise items. Miscomprehending the text is reflected in failing to answer them. Therefore, text removal is essential in reflecting readers' comprehension without any bias of the obtained results.

It is worth mentioning to talk about marking in the multiple-choice exercise. One reason for choosing this type of testing is that it is easy to mark. The marker does not run the risk of being subjective. In both multiple-choice exercises; in Part One and Part Two of the experiment, marking is out of twenty. Each exercise contains ten items to be answered, each marked on two points.

4. Data Analysis

The experiment is done with the aim of confirming the study's hypothesis. The latter claims that if students prior knowledge is activated prior to reading an informational text through brainstorming, their reading comprehension is likely to be enhanced. To confirm its truth, the experiment results are to be reported then discussed. Since the experiment is divided into two parts; Part One and Part Two, its results will be reported and discussed into two parts.

4.1. Part One

The results obtained in Part One of the experiment are reported with no discussion or comments on them. An experiment's results should be first

described and organized in a comprehensive way. This description and organization help in giving sense to the raw data and aid the researcher in following methodic ways once he starts his analysis.

4.1.1. Presenting the Raw Data

In Part One of the experiment, readers work on Text (1) (See appendix I). Gr1 is the control group which receives no treatment and Gr2 is the experimental one which receives the experiment's treatment. The two groups' scores in the multiple-choice exercise which aims to test their reading comprehension are presented in the following table:

N	Gr1 Control	Gr2 Experimental
1	15	20
2	15	15
3	12	17
4	16	18
5	15	17
6	10	19
7	14	15
8	16	17
9	16	20
10	17	19
11	15	18
12	16	16
13	17	16

Table 8: The Experimental and Control Groups' Scores in Part One of the Experiment

These scores are best represented through the following histogram. It helps the eyes in noticing the difference between the two sets of the scores; those of the control group and the experimental one in a more rapid way.

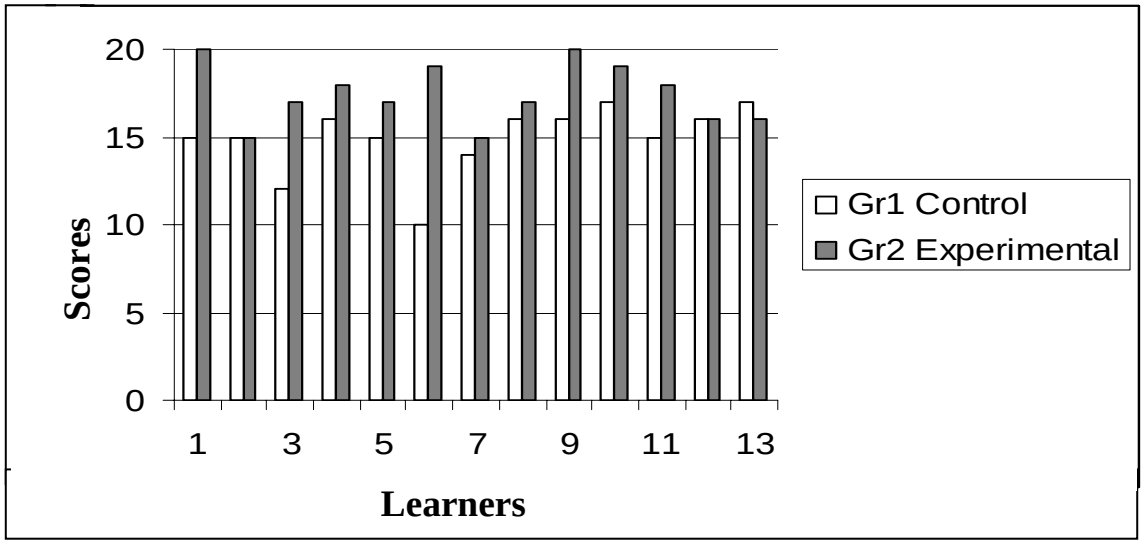


Figure 4: The Experimental and Control Groups' Scores in Part One of the Experiment

Table 8 represents students' scores in the multiple-choice exercise (See appendix II) which aims at testing readers' comprehension. They are arranged into two sets one for the control group Gr1 and the other set for the experimental one Gr2.The highest score for the control group is 17 and the lowest one is 10. For the experimental group, the highest mark is 20 and the lowest one is 15. We need to know how the scores of the two groups are distributed. That is to say, how the scores of the control group Gr1 are distributed in the range 10-17 and how those of the experimental group are distributed in the range 15-20. This is likely to help in organizing our data in a more clear way.

4.1.2. The Scores Frequency Distribution

To organize our data in a more comprehensible way, we need to present readers' scores frequencies. In each set, we notice that some scores are repeated

more than one time. This is what we call the score frequency. To make it clear we will present the frequency distribution through the following graph:

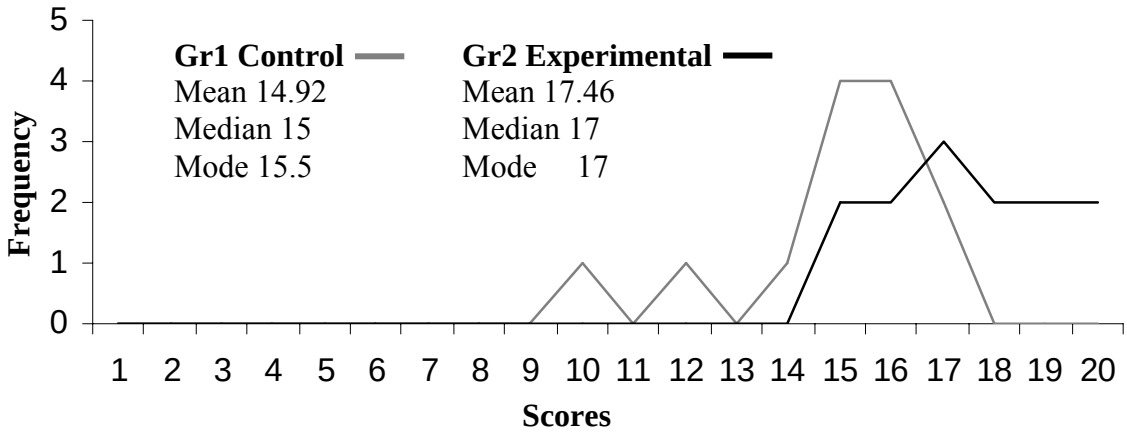


Figure 5: Scores' Frequency Distribution in Part One of the Experiment

Figure 5 states a clear description of readers' scores. It exhibits the frequency of each score. From this figure, we can also show the median and the mode of each set of the scores. It is worth mentioning to say that the median is the central value of a set of scores and that the mode is the most frequent score in a set of scores. We notice that the control group Gr1 scores range from 10 to 17 which make the median of this set the value 15. We notice also that the score 15 and the score 16 are repeated 4 times. Thus, the set of the control group scores does not have a mode but the value 15.5 which is the mean of these two scores can be taken as its equivalent. For the experimental group Gr2, scores range from 15 to 20 which make the median of this set the value 17. The mode of the experimental group set of scores is the score 17 which is repeated 3 times.

4. 1. 3. Calculating the Mean

The mean is the average of a set of scores. Therefore, the mean is calculated by adding together every score and then dividing them by the number of the scores (N).In our experiment, N is the same for the experimental and control groups which is 13 subject, thus 13 score. Calculating the mean helps in

stating the difference between the scores obtained by the members of the control group; Gr1 and the experimental one; Gr2. In what follows are the means of both groups; the control and the experimental in Part One of our experiment:

	Gr1 Control	**Gr2 Experimental**
Total	194	227
Mean	14.92	17.46

Table 9: Means of the Experimental and Control Groups' Scores in Part One of the Experiment

Table 9 shows that the mean of the experimental group; Gr2 which is 17.46 is higher than the mean of the control group; Gr1 which is 14.92. The value 17.46 > 14.92. Although it is early to make conclusions, we can say that the scores of the experimental group are higher or better than those of the control one.

Relying, only, on the comparison of the two means; that of the control group and the experimental one is not reliable in drawing inferences to be used in confirming our hypothesis. Therefore, we should use statistical inferences to test whether the independent variable (I V) (prior knowledge activation through brainstorming) is having the effect we supposed on the dependent variable (D V) (reading Comprehension).We need to choose a particular statistical test which suits the type of our hypothesis and the type of the raw data we accumulated. This test aims at concluding that the experimental group members' performance is affected by the manipulation of the (I V) and not the interference of other irrelevant variables.

Statistical inferences will help us in deciding whether the difference between the control group and experimental one scores is due to the I V or chance factors. Although we relied on the random sampling which helped in randomizing the effects of the irrelevant variables, the scientific mind obliges us to recognize the possibility that the experimental group's good performance is simply the result of some chance factors. The comparison of the two groups' (experimental and control) means which showed superior performance of the experimental subjects over the control ones do not leave us with a concise and an accurate conclusion which dictates that the I V is responsible of the experimental group's superiority in the obtained scores. Without using the statistical inferences, we will be in a doubtful situation. Therefore, to end up by finding the cause-effect relationship between the D V and the I V, a statistical test is to be used.

The statistical test we will conduct on the obtained scores will tell us how likely the difference between the experimental and control groups' performances is due to chance. We will be in search of significant findings to conclude that our hypothesis is a correct one. In our experiment, we will follow the conventional significance level of 0.05 which means that chance factors are responsible for the results one time of twenty. Choosing the statistical test to be used is never a random matter. It needs to fulfill certain conditions to help in reaching the objectives we are aiming at. This test should fit the type of the experiment and the hypothesis we stated as well as the type of the data we gathered. Choosing a non suitable test will create confusion and prevent us from providing correct conclusions.

4.1.4. The t-test

Relying on the comparison of the two means that of the experimental group Gr2 and the control one Gr1 is not reliable in establishing the causal relationship between the I V and the D V. For this reason, the t-test is to be used

to show the significance or non-significance of our findings. That is to say, the t-test is the solution in deciding whether the I V is behind the superior performance of the experimental subjects.

The choice of the suitable statistical test depends on the type of the experiment design. The data we gathered is accumulated from two independent groups. Thus, the t-test (parametric test), the Mann-Whitney test (non-parametric) and the chi-square test (non-parametric) can fit the type of our experiment design. Researchers consider the t-test to be the most powerful test. Hoping to make accurate inferences from our data, we have opted for the t-test from the rest of the different statistical tests.

4.1.4.1. The t-test Definition

The t-test is a statistical test which helps in drawing statistical inferences from an experiment's data. This test gives a mathematical formula for computing the value of the observed *t*. This latter is to be compared to the tabulated *t* after specifying the level of significance and the number of the degrees of freedom. The computational formula of the t-test is as follows:

$$t_{N_1+N_2-2} = \frac{(\bar{X}_1 - \bar{X}_2)\sqrt{(N_1+N_2-2)N_1N_2}}{\sqrt{(N_1 s_1^2 + N_2 s_2^2)(N_1+N_2)}}$$

N_1 stands for the number of subjects in the control group; Gr1.

N_2 stands for the number of subjects in the experimental group; Gr2.

$\bar{X}_1$ stands for the mean of the control group; Gr1.

$\bar{X}_2$ stands for the mean of the experimental group; Gr2

s_1^2 stands for the variance of the control group; Gr1 scores.

s_2^2 stands for the variance of the experimental group; Gr2 scores.

The value of the tabulated *t* to which the observed *t* is compared is specified depending on three factors namely the number of the degrees of freedom, the type of the hypothesis and the level of significance. First, we need to calculate the number of the degrees of freedom. This number in a t-test is calculated via the following formula: N_1+N_2-2 (N_1 and N_2 stand for the number of the two independent sets of scores).Second, the type of the hypothesis being a directional one or not participates in determining the critical value of *t.* The hypothesis can be one-tailed as it can be a two-tailed one. In other words, the prediction's supposed performance is not specific. Since in our study we predict that prior knowledge activation through brainstorming will have a positive effect on readers' comprehension, our hypothesis is a one-tailed hypothesis. Whereas, if we have not specified the effect of the treatment being a positive or a negative one, our hypothesis is to be seen as a two tailed-prediction. The type of the prediction (one-tailed or two-tailed) is important in drawing the right inferences from the statistical tests. The third factor is to decide about the level of significance .In our statistical test, we decide on 0.05 level of significance. Therefore, having the level of significance, the number of the degrees of freedom and the type of the prediction will help on deciding about the critical value of *t.*

4.1.4.2. The Computation of the Observed *t*

I. The two means of the control and experimental groups $\bar{X}_1$ and $\bar{X}_2$ are calculated using the formula: $\bar{X} = \Sigma / N$

Making the substitutions, we find:

$\bar{X}_1 = 14.92$ and $\bar{X}_2 = 17.46$

II. Calculating the two variances s_1^2 and s_2^2 using the formula: $s^2 = \frac{\Sigma X^2}{N} - \bar{X}^2$

Making the substitutions, we find:

$s_1^2 = 3.61$ $s_2^2 = 2.71$

III. To find the observed *t*, we substitute the values of $\bar{X}_1$, $\bar{X}_2$, s_1^2, s_2^2, N_1, N_2 in the t-test formula:

$$t_{N_1+N_2-2} = \frac{14.92 - 17.46\ \sqrt{(13+13-2)\ 13\times13}}{\sqrt{(13\times3.61+13\times2.71)\ (13+13)}}$$

$$t_{N_1+N_2-2} = -3.50$$

IV. To find the degrees of freedom, we make use of the following formula:

$df = N_1+N_2-2$

Making the substitutions, we find:

$df = 13+13-2 = 24$

V. For 24 degrees of freedom corresponding to 0.05 level of significance, the value of the tabulated *t* (for one-tailed hypothesis) is 1.032.

VI. Conclusion: the observed *t* in Part One of the experiment is greater than the tabulated one. That is to say, the observed *t* 3.50 >1.032. Thus, chance is far from being behind the results we obtained. In other words, the prediction we supposed in this work of research is accepted.

4.2. Part Two

Because the description of the results obtained in Part One of the experiment was a fruitful step, we are hopeful that the description of those obtained in Part Two will lead us to the same conclusion. Therefore, we will proceed in the same way we have followed in Part One of the experiment.

4.2.1. Presenting the Raw Data

In Part Two of the experiment, readers' work on Text (2) (See appendix II). Gr1 serves as the experimental group which receives the treatment and Gr2 is the control one which his members do not brainstorm before reading the text. Both groups and after ending with reading answer the ten multiple-choice items (See appendix II) intending to test their reading comprehension. The scores the two groups obtained are the following:

N	Gr1 Experimental	Gr2 Control
1	15	14
2	18	15
3	16	14
4	18	16
4	17	13
6	17	15
7	16	16
8	19	14
9	17	18
10	14	15
11	17	17
12	18	16
13	19	15

Table 10: The Experimental and Control Groups' Scores in Part Two of the Experiment

These scores are presented in a more clear way through figure 6. This histogram shows the difference between the scores obtained by the two groups. Thus, it is more comprehensible to the eyes that there is a difference in the two groups' performances.

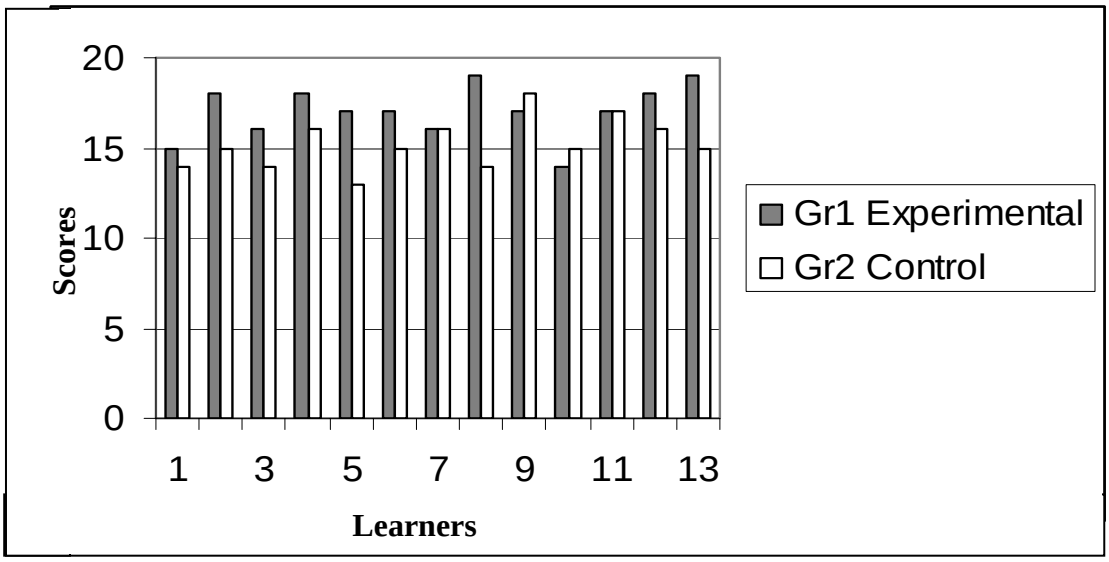


Figure 6: The Experimental and Control Groups' Scores in Part Two of the Experiment

Table 10 exhibits readers' scores in Text (2), those of the experimental group; Gr1 and the control one; Gr2. Scores of the experimental group range between 14 and 19. In the control group, the highest score is 18 and the lowest one is 13. We need to have a clear description of the two sets' scores. That is to say, we need to know about the characteristics of each score namely the scores' frequencies to organize the raw data in a more meaningful way.

4.2.2. The Scores Frequency Distribution

The two sets of scores; the experimental group; Gr1 and the control group; Gr2 differ in their characteristics. Each set has a particular frequency distribution. These characteristics show the difference between the two samples' performances. The following figure aims at exhibiting that:

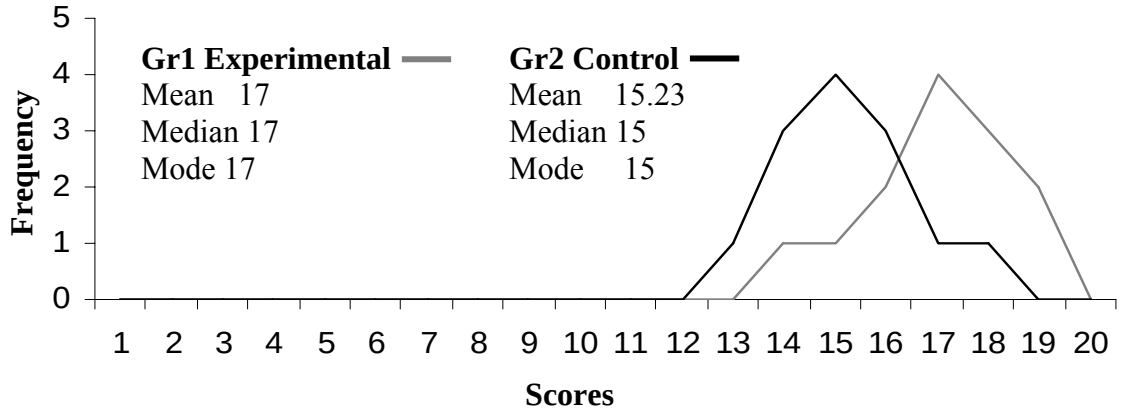


Figure 7: Scores' Frequency Distribution in Part Two of the Experiment

This figure shows the frequency of each score obtained by the experimental as well as the control groups in Part Two of the experiment. Scores of the experimental group Gr1 range between 14 and 19 which make their median 17. Scores of the control group Gr2 range between 13 and 18 which make their median the value 15. The mark 17 is repeated 4 times, thus the mode of the experimental group set of scores is 17. The mode of the control group is the score 15 which is repeated 4 times.

4.2.3. Calculating the Mean

The computation of the mean of the experimental and control groups' obtained scores helps in giving the primary view about the difference in the two samples' results in the reading comprehension test. By adding the scores of each set together then dividing them by the number of subjects in each group (N_1 and N_2 equal to 13 subject), we are likely to find the means of the two groups' scores. The following table exhibits the two means of the experimental group; Gr1 and the control one; Gr2 in Part Two of the experiment:

	Gr1 Experimental	Gr2 Control
Total	221	198
Mean	17.00	15.23

Table 11: Means of the Experimental and Control Groups' Scores in Part Two of the Experiment

Table 11 shows that the mean of the experimental group which is the value 17 is greater than that of the control group 15.23. Comparing the two means is never reliable to make the conclusion that superiority of the experimental group performance is due to the treatment which its members received. That it is to say, and at this point, we cannot conclude that our hypothesis is a correct one. Therefore, we need to make statistical inferences through the t-test to confirm that the I V is responsible for the superior performance of the experimental group over that of the control one.

4.2.4. The Computation of the Observed *t**

To calculate the observed *t** in Part Two of the experiment, we will proceed in the same way we used in Part One. That is to say, we will calculate the two means; of the experimental group Gr1; ($\bar{Z}_1$), of the control group; Gr2 ($\bar{Z}_2$) and the two variances; of the experimental group; Gr1 (s_3^2), of the control group; Gr2 (s_4^2). The number of subjects of the experimental and the control group in Part Two of the experiment is the same (13 subject) with that of Part One.

I. The two means of the experimental group; Gr1 and the control one; Gr2 are calculated using the following formula:

$$\bar{Z} = \Sigma Z / N$$

Making the substitutions, we find:

$\bar{Z}_1 = 17$ $\bar{Z}_2 = 15.23$

II. We calculate the two variances of the two samples Gr1 (experimental) and the Gr2 (control); s_3^2, s_4^2 using the following formula:

$$s^2 = \frac{\Sigma Z^2}{N} - \bar{Z}^2$$

Making the substitutions, we find the following values:

$s_3^2 = 2$ $s_4^2 = 1.74$

III. To find the observed t^* (the observed t in Part Two of the experiment), we make the substitutions of the values of $\bar{Z}_1$, $\bar{Z}_2$ s_3^2, s_4^2 in the t-test formula:

$$t^*_{N_1+N_2-2} = \frac{(\bar{Z}_1 - \bar{Z}_2)\sqrt{(N_1+N_2-2)\,N_1\,N_2}}{\sqrt{(N_1 s_3^2 + N_2 s_4^2)(N_1+N_2)}}$$

Making the substitutions, we find:

$$t^*_{N_1+N_2-2} = \frac{17 - 15.23\sqrt{(13+13-2)\ (13\times13)}}{\sqrt{(13\times2+13\times1.74)\ (13+13)}}$$

$$t^*_{N_1+N_2-2} = 3.17$$

IV. To find the number of the degrees of freedom, we make use of the following formula:

$df = N_1 + N_2 - 2$

Making the substitutions, we find:

$df = 13+13-2 = 24$

V. For 24 degrees of freedom corresponding to 0.05 level of significance, the value of the tabulated *t* (for one-tailed hypothesis) is 1.032.

VI. Comparing the observed *t** in Part Two of the experiment, we find that: 3.17 > 1.032. That is to say, the value of the observed *t** is greater than the value of the critical value of *t* .The result of this comparison allows us to conclude that the prediction we supposed in the present study is a correct one.

5. Reporting the Results

In what follows is a summary of the obtained results in Part One and Part Two of the experiment. These results are first presented as raw data. Second, they are organized in a more comprehensible way which shows the characteristics of the scores obtained by the two groups namely their frequency distribution. The four sets of scores' means are calculated and compared. The comparison of the means proves to be helpless in establishing the cause-effect relationship between the I V and the D V. The t-test statistical test is the test which we used in drawing statistical inferences for the aim of confirming the truth of our hypothesis.

5.1. Reporting the Results of Part One

In Part One of the experiment, readers work on material one (See appendix I). Gr1 serves as the control group and Gr2 serves as the experimental one which receives the treatment. Subjects of both groups read the text silently then answer the multiple-choice exercise presented in material one. Readers' answers are corrected and marked.

The scores obtained by the control group; Gr1 and the experimental group; Gr2 tend to vary. The experimental group scores range between 15 and 20 and those of the control one exceed from the mark 10 to the mark 17. Through analyzing the two sets of scores in details, that is to say, determining

their frequency distributions, we notice that the control group scores have the value of 15 as a median. The control group's set of scores in Part One of the experiment does not have a mode for the simple fact that two scores have the same frequency but we can consider the mean of these two scores as the mode of the set which is the value 15.5 . The experimental group set of scores has the value of 17 as the median of the set and the value of 17 as its mode.

The experimental group; Gr2 mean is greater than that of the control one; Gr1. The average of the experimental group is the value 17.46 and that of the control one is the value 14.92. Through comparing the two values, we notice that 17.46 > 14.92. This comparison is not reliable to draw conclusions which may confirm the truth of our hypothesis. Therefore, a statistical test is needed to draw statistical inferences.

The t-test; statistical test, we conducted on the data we obtained in Part One of the experiment helps in establishing the cause-effect relationship between the I V and the D V of our hypothesis. First, the value of *t* was calculated then it was compared to the critical value of *t.* Making use of the t-test formula, the value of *t* is found to be equal to 3.50. Through, specifying 0.05 level of significance for 24 degrees of freedom, the value of the tabulated *t* equals 1.032. The two values are compared making it clear that 3.50 > 1.032. This comparison helps in concluding that our results are significant. Therefore, confirming that the supposition we made in our hypothesis is a correct one.

5.2. Reporting the Results of Part Two

In Part Two of the experiment, subjects work on the material two (See appendix II). Gr1 serves as the experimental group which receives the treatment and Gr2 is the control one. As in Part One of the experiment, both groups go on reading silently the second text then answer the multiple-choice exercise presented in material two with the difference that the experimental group

brainstorms about the text before entering to it. Readers' answers are corrected and marked to have an idea about their achievements in reading comprehension.

The two sets of scores obtained by the two groups; the experimental one Gr1 and the control one; Gr2 show a noticeable difference in the two samples' reading achievements. Gr1 (experimental) scores range between 14 and 19 and those of Gr2 (control) exceed from the mark 13 to the mark 18. The detailed description of the two sets of scores gives more meaning to the data we accumulated. In other words, it helps to decide about the mode and the median of the scores. The mode of the experimental group scores is the score 17 and its median is the value 17. For the control group, the mode is the score 15 and the median equals the value 15.

The means of the two samples are calculated and compared. The average of the experimental group; Gr1 is the value 17 and that of the control one Gr2 is the value 15.23. Through comparing the two values, we find that the experimental group mean is greater than that of the control one. This comparison does allow us to make the conclusion that the I V is responsible for the superior performance of the experimental group; Gr1. Therefore, and like we proceeded in Part One of the experiment, the t-test is the resort to show whether the results obtained in this part of the experiment are also significant or not.

The t-test is used also in Part Two of the experiment to draw statistical inferences about the accumulated data. After the computation of the variances of the two samples' sets of scores and making the needed substitutions in the t-test formula, the t^* (observed t in Part Two of the experiment) value is found to be equal to 3.17. The level of significance chosen for this part of the experiment is also the value 0.05 and the number of the degrees of freedom is also the same (24 degrees of freedom). The value of the tabulated t corresponding to the mentioned level of significance and the number of the degrees of freedom is the

value 1.032. The comparison of the observed *t** to the tabulated *t* shows that the value of the first is greater than the value of the second one. This is likely to help in drawing the conclusion that in Part Two also the I V affects positively the D V.

6- Discussing the Findings

The results are discussed with the aim of proving the truth of the prediction we supposed in our hypothesis. The study's hypothesis claims that readers whom their prior knowledge about an informational text is activated prior to reading it through brainstorming are likely to achieve better in reading comprehension tests than those who do not brainstorm. In other words, the results of the experiment should prove that the manipulation of the I V (prior knowledge activation through brainstorming) has a positive effect on the D V (reading comprehension).

The discussion of the findings will proceed in the same way we presented in the results. In other words, we will discuss first the results obtained in Part One of the experiment then we will move to those obtained in Part Two. As a final step, the results obtained in Part One and Part Two of the experiment are compared to state the final conclusion of the study.

6.1. Discussing the Findings of Part One

Table 8 shows that the experimental group; Gr2 members gain higher scores than those of the control one; Gr1. This difference is not clear unless we compare the means, the modes and the medians of the two groups. The comparison of theses values exhibits a superior performance of the experimental group over the control one. In other words, the mean of the experimental group is found to be higher than that of the control one and the difference between them equals the value 2.54. Moreover, the mode of the experimental group which is the mark 17 is higher than the two most frequent values in the control

group which are the scores 15 and 16. In addition, the median of the experimental group which is the value 17 is greater than that of the control one which is 15. This superiority is attributed to the superiority of the experimental members who received the experiment's treatment. We were wishing to confirm that activating readers' prior knowledge of an informational text through brainstorming will help in increasing their reading achievements and through these first results our wishes seem to be realized.

The t-test statistical test we conducted on the results of Part One of the experiment shows that the prediction we supposed in our hypothesis is a correct one. Since the comparison of the observed *t* and its critical value reveals that the first value is greater than the second one, we conclude that our results are significant. The difference between the observed *t* and the tabulated one is the value 3.50 -1.032 which equals 2.46. Thus, the results we obtained in Part One of the experiment are highly significant. The significance of the obtained results dictates that the study hypothesis is correct. This conclusion establishes the cause-effect relationship between the two variables of the hypothesis. Therefore, prior knowledge activation of an informational text through brainstorming is responsible for enhancing upper-intermediate learners' reading comprehension.

The reason behind the superior performance of the experimental group; Gr2 members in Part One of the experiment is that their prior knowledge about Text (1) is activated through brainstorming before they start reading it. In other words, they are the members who are psychologically better prepared to enter into the text and to read it easily. They are also the members who better remember the text's content. Therefore, the experimental group, Gr2 members gain more chance to succeed in answering the multiple-choice exercise items. In contrast, the control group Gr1 members start directly reading the text without prior knowledge activation. They are less prepared to read the text and thus they have less chance to understand it and to answer the ten multiple-choice items.

From the brainstorming chart (See appendix III) produced by members of the experimental group; Gr2 in Part One of the experiment, we notice how this chart contributes to learners' comprehension of Text (1) (See appendix I). Learners brought from their already existing stores information which they confronted the moment they started reading. This information varied between ideas and vocabulary items. In other words, and thanks to prior knowledge activation through brainstorming readers pour out a considerable number of lexical items which form the text's sentences. Theses words are also met in the reading comprehension test (See appendix I). Moreover, some of the text's expressed meanings and thanks to brainstorming are stated on the blackboard before the experimental members' eyes. Therefore, a considerable portion of the text is dealt with before the reading act starts causing readers to feel confident to read it. The moment they start reading, their focus falls on what is new with the aim of building the links existing between the old and the new information and this likely to help in understanding the text. This is not the case with the control group members who need first to read the text to know about its ideas and its vocabulary. That is to say, the biggest portion of the text is new for the control subjects and their focus falls on everything in the text. This, in fact, causes the readers' memory to be overloaded resulting in a low level of comprehension.

In Text (1) (See appendix I) the experimental subjects participated in their understanding through bringing to the surface a big portion of what they met once they read. The text talks about money and members of the experimental group succeeded to guess about its topic. They talked about money importance, its characteristics and the shape it takes. Moreover, they mentioned the difference in money deals in the past and in the present days. In addition, the experimental group; Gr2 members poured out some of the text's vocabulary items. For example, the words " coins" and " notepapers" which are found in the text introduced to learners before they start reading. These two terms may not be known by all the experimental group subjects and their introduction increases

learners' benefit. Therefore, the brainstorming chart helps readers in benefiting from each other stores of information as it aids in gaining a portion of familiarity with its content leading to determining the learners' focus while reading, thus, enhancing their reading comprehension.

6.2. Discussing the Findings of Part Two

Table 10 exhibits the scores of the experimental group; Gr1 and the control one; Gr2. From this table, we notice that the scores are different and that those of the experimental members seem to be higher than those of the control ones. This difference turns to be clear the moment the means, modes and medians of the two sets of the scores are compared. The mean of the experimental group; Gr1 is greater than that of the control one; Gr2 and the difference between the two means' values is the value 1.77. The value of the median and the mode of the experimental subjects' scores is 17. For the control group, the value of the median and the mode is 15.Through making the comparison of these values, we notice that: 17>15 and 17>15. Therefore, the mean, the mode and the median of the experimental group; Gr1 are greater than those of the control one; Gr2. The comparison of these values shows that experimental subjects perform better than the control ones. In fact, this observation which relies solely on the comparison of the mean, the modes and the medians of the experimental group; Gr1 and the control one; Gr2 is not reliable to state a final conclusion which confirms our observation.

In an attempt to check the truth of our hypothesis, the t-test is also conducted on the results obtained in Part Two of the experiment. The value of the observed t^* 3.17 is greater than that of the tabulated t 1.032. The difference between the two values is 3.17- 1.023 which equals the value 2.13. Thus, the results we obtained in Part Two of the experiment are highly significant. This significance leads us to confirm the truth of our hypothesis. That is to say, confirming that there is a cause-effect relationship between the I V (activating

prior knowledge through brainstorming) and the DV (reading comprehension). Therefore, and through the t-test, we conclude that readers whom their prior knowledge is activated through brainstorming score better in reading comprehension than those who do not activate their already existing stores.

The brainstorming chart (See appendix IV) shows that the experimental subjects in Part Two of the experiment are likely to understand Text (2) than the control ones. The chart represents what learners already know about the text in terms of ideas and vocabulary items. It does not sum up all what the learner will confront in the text while he starts reading it. Some of the text ideas are missed and this is likely to help the learners in focusing their attention during reading. The reader realizes that he knows in advance about the text which helps him in gaining confidence to read it. He will be in an attempt to understand the new information through linking it to the old one existing in his schemata for the over all aim of achieving comprehension.

Members of the experimental group; Gr1 brainstorming about Text (2) (See appendix II) helps them in scoring better in comprehension. The text speaks about the idea of being or not being a vegetarian person. The experimental subjects sate the advantages as well as the disadvantages of this phenomenon. They, themselves, provide some of the ideas they will meet while reading. An example of these ideas which are provided by the experimental subjects prior to reading Text (2) is that vegetarianism is bad for children. They argue that protein which is necessary for children's growth does not exist in vegetables. Thus, knowing this idea in advance saves readers' time and helps them in focusing on what is new in the text. Moreover, the brainstorming chart of Text (2) helped the experimental group members to be exposed to some of the text's lexical items. An example of this is the word " protein" which is poured out by the learners prior to reading. Therefore, the experimental subjects' brainstorming prior to reading Text (2) activates their prior knowledge about it

causing their reading comprehension to be superior. The control members whom their prior knowledge is not activated reveal less comprehension of the text. This confirms what we supposed in our hypothesis. In other words, the manipulation of the I V (prior knowledge activation through brainstorming) has a positive effect on the D V (reading comprehension).

6.3. Relating the Findings of Part One and Part Two

Part One and Part Two of the experiment differ in the text to be read and the role played by the two groups G1 and Gr2. In Part One, learners work on Text (1) and Gr1 serves as the control group and Gr2 plays the role of the experimental one. In Part Two, learners work on text (2) and the experiment's treatment shifts from Gr2 to Gr1. In other words, in Part Two, Gr1 which was the control group in Part One turns to be the experimental group and Gr2 which was the experimental group in Part One turns to be the control one in Part Two.

The scores of both groups in both parts of the experiment confirm the truth of our hypothesis. In Part One, members of the experimental group Gr2 scored better in reading comprehension than the control ones; Gr1 members. The computation of the means of the two groups shows a primary superiority of the experimental subjects' performance in understanding Text (1) over that of the control members. Once the treatment shifts in Part Two of the experiment, performance superiority shifts with it. In other words, once group Gr1 turns to be the group which brainstorms about the text prior to reading it, it turns to be the group to score better in reading comprehension. Whereas, the low performance in reading comprehension of Gr1 members in Part One of the experiment turns to be a high one in Part Two as the members of this group turn to be the ones to receive the experiment's treatment.

	Part One	Reading achievement
Gr1	Control	Low
Gr2	Experimental	High

Table 12: Gr1 and Gr2 Reading Achievements in Part One of the Experiment

	Part Two	Reading achievement
Gr1	Experimental	High
Gr2	Control	Low

Table 13: Gr1 and Gr2 Reading Achievements in Part Two of the Experiment

Table 12 and table 13 show that superiority of reading comprehension follows the experiment's treatment shift. In other words, the groups' members who brainstorm about Text (1) or Text (2) are the ones to score better in reading comprehension. That is to say, Gr2 (in Part One) and Gr1 (in Part Two); the groups which received the treatment, gain superior scores in reading comprehension. Therefore, the treatment which is prior knowledge activation through brainstorming is responsible for determining the groups' high or low performances in reading comprehension tests.

The t-test conducted on the results obtained in both parts of the experiment proves the truth of our hypothesis. In Part One, the observed *t* which

equals the value 3.50 is higher than the tabulated one which equals the value 1.032 for 0.05 level of significance and 24 degrees of freedom. In Part Two, the observed *t** which equals the value 3.17 is also greater than the critical value of *t* for the same level of significance and the same number of the degrees of freedom. Therefore, both parts of the experiment's results are highly significant leading us to conclude that our hypothesis is a correct one.

The scores obtained by Gr1 members in Part One and Part Two of the experiment show that their reading comprehension is greater once they brainstorm about the text prior to reading it. Text (1) and Text (2) are of the same genre and the same level of difficulty but Gr1 members' comprehension of Text (2) is higher than that of Text (1). The reason behind this is that Gr1 members brainstorm about Text (2) to activate their prior knowledge and this helped them in understanding it. The following table exhibits Gr1 scores in Part One and Part Two of the experiment:

N	Gr1 Control	Gr1 Experimental
1	15	15
2	15	18
3	12	16
4	16	18
5	15	17
6	10	17
7	14	16
8	16	19
9	16	17
10	17	14
11	15	17
12	16	18
13	17	19

Table 14: Gr1 Scores in Part One and Part Two of the Experiment

From this table, we notice that 11/13 student score better in reading comprehension once they activate their prior knowledge through brainstorming prior to reading a text. The difference in the scores exceed from 1 to 7 points.1/13 student gains an equal mark with and without background knowledge activation prior to reading the text. 1/13 student gains a better mark when he does not receive the treatment than when he receives it. The reason behind the results of these two latter students may be attributed to their foreign language high level of proficiency. Although 2/13 student performances in reading comprehension do not show the importance of prior knowledge activation prior to reading a text, a high percentage argues for its big value. Table 15 and figure 8 make it clear for the eye to notice learners' success in comprehending a text thanks to prior knowledge activation.

Performance	**N**	**%**
Superior	11	84.61
Equal	01	07.69
Inferior	01	07.69
Total	13	100

Table 15: The Rate of Gr1 Reading Comprehension Performance in Part One and Part Two of the Experiment

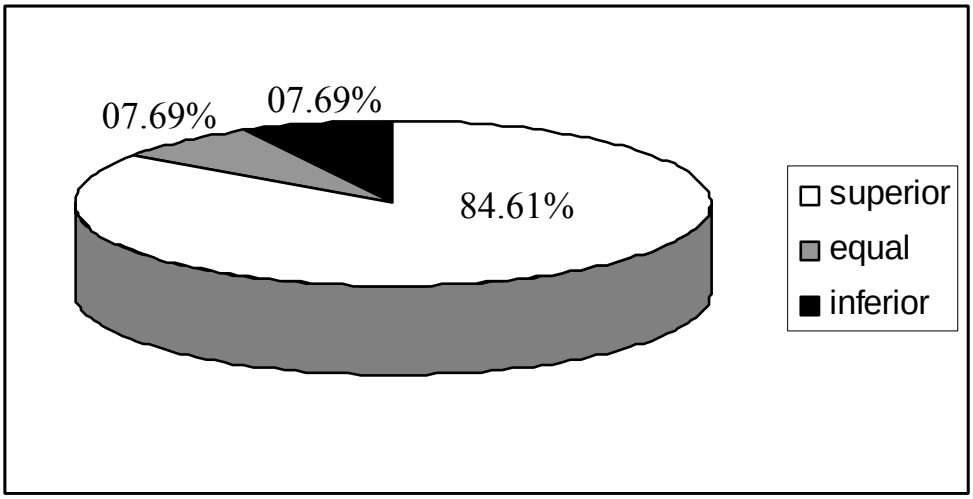


Figure 8: The Rate of Gr1 Reading Comprehension Performance in Part One and Part Two of the Experiment

The scores obtained by Gr2 members in Part One and Part Two of the experiment exhibit higher comprehension of the Text (1) than Text (2). The reason behind this is that prior to reading Text (1), Gr2 members activated their prior knowledge through brainstorming which enhanced their comprehension of the text. In contrast, they read Text (2) directly with no background knowledge activation and this caused their low achievement in comprehending it. The following table shows the difference in Gr2 members' achievements in reading comprehension once they receive and do not receive the treatment:

N	Gr2 experimental	Gr2 control
1	20	14
2	15	15
3	17	14
4	18	16
5	17	13
6	19	15
7	15	16
8	17	14
9	20	18
10	19	15
11	18	17
12	16	16
13	16	15

Table 16: Gr2 Scores in Part One and Part Two of the Experiment

From Table 16, we notice that Gr2 members perform better in reading comprehension once they activate their background knowledge prior to reading a text. 10/13 student of Gr2 members show that they benefited from prior knowledge activation through brainstorming and that their reading comprehension is better than that when they read the text without any introduction to it. The difference in their scores exceeds from 1 to 7 points. 2/13 student gained equal scores with and without prior knowledge activation. Only 1/13 student performed better in the reading comprehension test once he did not brainstorm about the text than when he did. The reason behind these three learners' performances in reading comprehension may be attributed to their foreign language level of proficiency. Therefore, the number of Gr2 members

who benefit from prior knowledge activation exceeds the number of those who did not benefit. In what follows is a figure which shows the rate of Gr2 members who succeed in comprehending once they activated their prior knowledge through brainstorming:

Performance	N	%
Superior	10	76.92
Equal	02	15.38
Inferior	01	07.69
Total	13	100

Table 17: The Rate of Gr2 Reading Comprehension Performance in Part One and Part Two of the Experiment

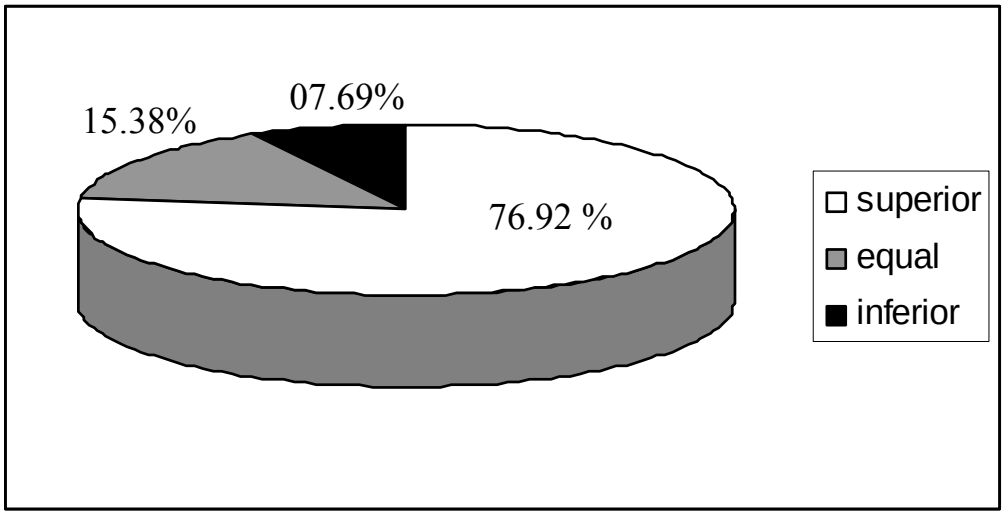


Figure 9: The Rate of Gr2 Reading Comprehension Performance in Part One and Part Two of the Experiment

Conclusion

The study investigation; the degree of the impact of prior knowledge activation through brainstorming in enhancing second year students at the ENS reading comprehension achievement is conducted with the aim of checking the truth of the study supposed prediction: whether brainstorming to activate readers' prior knowledge about an informational text helps learners of English as foreign language to score better in reading comprehension. Since our study falls in the context of teaching and learning English as a foreign language, brainstorming which suits informational texts is seen as the best prior knowledge activation strategy to help in avoiding the foreign language obstacles. Learners enjoyed the creation of the brainstorming charts and realized their importance in remembering and understanding the texts at hand. This strategy established a communicative mode of work which added to learners' motivation to read and understand the informational text.

Testing the degree of impact of prior knowledge activation through brainstorming in enhancing readers' comprehension of the informational text is found to be significant in both parts of the experiment. In Part One as in part Two, The t-test statistical test conducted on the obtained results confirmed that prior knowledge activation through brainstorming aids learners to gain high scores in the reading comprehension tests. This leads us to derive the conclusion that brainstorming is an effective strategy in activating learners' prior knowledge about the informational text which enhances their reading comprehension.

Our experiment has demonstrated that second year learners' at the ENS need to activate their prior knowledge about the informational text through brainstorming in order to succeed in grasping its meanings. Their benefits are cognitive as well as emotional. In other words, prior knowledge through brainstorming helps learners of English as a foreign language understand the

informational text as it increases their will to read it. Therefore, the implementation of such a strategy will aid in developing the learners' proficiency in reading English as a foreign language.

Chapter Four

Pedagogical Implications

Introduction

In this chapter, we will try to propose some pedagogical implications which may be of a great benefit to teachers of reading. These implications are the result of the conclusions we have made from this work of research. We will be suggesting the use of brainstorming as an effective strategy to activate readers' prior knowledge about the informational text as a means to increase readers' reading comprehension. Moreover, we will provide the advice of training readers to use both group and individual brainstorming to ensure success with reading. In addition, some rules of the good brainstorming session are well summarized for the teachers who wish to go on the right type of introductions.

This chapter includes also the study limitations and some suggestions for further research. Some points in the study need to be looked at. These points need to be explained to avoid considering them as gaps in our study. Moreover, and thanks to the study conclusions, we suggested what can be a new idea of future works of research.

1. Pedagogical Implications

Teachers of upper-intermediate foreign language learners do not give the necessary value to background knowledge activation prior to reading a text. They may go on some introductions based on asking some haphazard questions as they may provide a fruitful type of introduction without knowing its benefits to the reader. Moreover, their knowledge about the different strategies used for prior knowledge activation is very limited. A teacher may use a prior knowledge activation strategy in a spontaneous way without knowing its technical labeling. In addition, teachers do not realize the importance of informing learners about the necessity of background knowledge activation prior to reading a text. The absence or the lack of this class instruction pushed learners to develop the habit

of rushing to reading without thinking about what the text may contain as knowledge as it customizes the fact for teachers not to introduce learners to the text they will be reading.

1.1. Implementing the Tradition of Brainstorming Prior to Reading

It was proved through this work of research that prior knowledge activation through brainstorming enhances upper-intermediate readers' comprehension of the informational text. For this reason, EFL teachers are advised to help their upper-intermediate learners in increasing their reading comprehension scores by establishing the tradition of using this strategy. It will be useful to make learners develop the habit of bringing all their ideas about an informational text before reading it. The benefit of this strategy is that it is easy to implement. In other words, it necessitates no preparation time both for the learner and the teacher. It is simply a spontaneous flow of ideas about a given text before reading it. This flow of ideas renders the readers more prepared mentally and psychologically to enter to the world of the text. In other words, the reader will know to some extant about the text's content and this helps in increasing his will to read it.

1.1.1. Group and Individual Brainstorming

EFL upper-intermediate readers will be better equipped to understand the informational texts if they acquire group as well as individual brainstorming. Group brainstorming is of more utility in activating readers' prior knowledge inside the classroom. Through this type of brainstorming, the teacher establishes a communicative atmosphere through which learners interact with each other and exchange their already existing stores of information. Thus, group brainstorming renders the activated knowledge richer and widens readers' preparation to enter to the world of the text. As readers read inside and outside the class, teachers should train them to brainstorm individually. Thus, learners will keep the habit to activate their prior knowledge prior to reading the text at hand once they face it alone.

1.1.2. Increasing the Will to Read the Informational Text

Through the experiment we conducted, we notice that prior knowledge activation through brainstorming helps to cover learners' lack of motivation to read the informational text. The informational text compared with the narrative one is less motivating to read for almost learners. Since lack of motivation is agreed on among psychologists to be an obstacle in learning, it is advisable to go on prior knowledge activation through brainstorming to increase learners' wills to read the informational text.

1.2. Using Brainstorming Charts to Develop Other Class Activities

The brainstorming charts developed by readers before reading the text aiming at activating their prior knowledge may be used by the teacher to develop other reading comprehension activities. Since the reading teacher strives to ensure learners' success in understanding the reading selections, he may profit from the charts represented on the blackboard to produce pieces of writing centering on the text's topic. This activity is best suited at the end of the reading session. On the one hand, Learners and through it will try to summarize the text's ideas making sure they have absorbed its meaning. On the other hand, the teacher and through learners' productions gains chance to check his learners' success with the text at hand.

1.3. Conditions for the Good Brainstorming Session

The EFL reading teacher should respect the rules of prior knowledge activation through brainstorming to introduce the reading act. He always needs to keep in mind that his role is to facilitate learners' schema activation and not to dictate on them directly the text's ideas. Moreover, time limits for brainstorming should not steal the learner's reading time. That is to say, the teacher should manage the reading session time in a reasonable way to avoid the wrong introductions. In addition, the readers should be given the total freedom to bring

to the surface their stored knowledge without any kind of criticism. If the teacher respects these conditions, he is likely to ensure a successful brainstorming session prior to reading the text.

2. Limitations of the Study

Testing just one strategy of prior knowledge activation namely brainstorming is not enough to conclude that prior knowledge activation through other strategies necessarily enhances upper-intermediate learners' reading comprehension. We are not sure that all background knowledge activation strategies will aid in absorbing the text meaning. It will be illogical to go on testing the effectiveness of all the strategies in enhancing reading comprehension through one work of research. In the context of our study, the hypothesis we stated checks the effect of one I V (Prior knowledge activation through brainstorming) on the D V (reading comprehension). Thus, we cannot conclude that whatever the prior knowledge activation strategy used by the teacher it is likely to help in enhancing the learners' reading comprehension. For us, what is confirmed is the effectiveness of brainstorming in increasing the understanding of the informational text. The scientific mind necessitates the testing of all the remaining prior knowledge activation strategies before deriving the conclusion that the activation of the learners' already existing stores of information using whatever strategy for whatever genre of the text enhances readers' comprehension.

The choice of the text genre and its number in the study investigation is determined by the prior knowledge activation strategy we opted for. Using the informational text rather than the narrative one is not a matter of preference or haphazard reasoning. This text type matches with brainstorming to activate learners' prior knowledge. Moreover, it eliminates the fact that readers' comprehension may be hindered by the cultural factors. In addition, the text's number was limited to two texts for the simple reason that they are of the same

category. In other words, since we cannot change the type of the text, repeating readings of the same genre will be a waste of time. Two texts are seen to be sufficient to test our hypothesis.

The use of the multiple-choice formats may be seen as an insufficient means for testing reading comprehension. This type of reading comprehension exercises has disadvantages as well as advantages. It is argued that it does not really reflect readers' comprehension. The reason behind this argument is that learners' correct answers may be a matter of chance and not the real grasp of the text's meanings. In other words, the choice of the answers may be a haphazard one which leads us to doubt the results obtained by the learners. The thing which may confirm learners' comprehension of the text is to ask them to summarize the text they have read. Although facing learners' productions about the text's theme will reveal their success or failure to cover its meanings, it is an activity which deal with another language skill namely writing. Thus, this exercise will confuse the thing we will test; the reading skill or the writing one. In spite of the criticism directed to multiple-choice exercises, it is widely used among reading theorists as a valuable means for testing reading comprehension for its objectivity ad facility while marking.

In the experiment the researcher was himself the teacher who facilitated learners' brainstorming as well as the one who marked their scores in the reading comprehension test. The teacher may in a way or an other be subjective for his sympathy with his investigation. In marking, subjectivity is eliminated through the use of the multiple-choice type of testing reading comprehension. Whereas, in providing help for learners to activate their schemas through brainstorming, the teacher may help them in the wrong way killing objectivity of his study. In other words, the teacher's help may cause learners to activate the wrong schemas creating obstacles for them to comprehend the text at hand as it may spoon feed their minds about the text content before even reading it.

3. Suggestions for Further Research

Activating upper-intermediate learners' prior knowledge through brainstorming proved to be helpful in enhancing readers' comprehension. The question we may ask here is whether group brainstorming is better helpful than the individual one. In our experiment, we tested group brainstorming and it gave significant results on learners' reading comprehension. It remains to test the effectiveness of prior knowledge activation through individual brainstorming on understanding the informational text.

For the replication of this work of research it is advisable to use several comprehension exercises. The multiple-choice format is not a sufficient means to insure accurate reflection of readers' comprehension. The combination of the multiple-choice exercises and the cloze procedure types of reading comprehension activities may be of more help. The cloze procedure is intended to cover readers' haphazard choice of the correct answers as it tests readers' accuracy in understanding the text's details.

Success of brainstorming which is a prior knowledge activation strategy in enhancing learners' reading comprehension of the informational text paves the way for testing other prior knowledge activation strategies suiting other types of the text; precisely the narrative one. As it was presented in chapter II, there is a large number of these strategies each suiting a particular text genre. Thus, a suggestion for future research is to test the effectiveness of these strategies. Moreover, conditions of the experiment may be subjected to changes or modifications. In other words, the researcher may try to check prior knowledge activation with other language proficiency levels like the elementary and secondary levels. In addition, the choice of the text type and the number of texts may also be of importance to look at.

It is agreed among cognitive psychologists that prior knowledge activation effects learners' achievements in general. The study we conducted proved that it is an important variable which affects the reading skill. From this, we may suppose that it do have effects on other language skills. Brainstorming which is the strategy we tested in our work of research is helpful for learners to develop pieces of writing. In other words, the brainstorming charts developed by learners prior to reading the selected informational texts can be used as material by teachers to develop their learners' writing skill. This, in fact, corresponds with the first writing phase termed planning. As learners gain chance through brainstorming to pour out freely their ideas about a given topic, their writing will be rich and easy. In fact, brainstorming will help them to stop thinking about the topic and to start writing their ideas on paper. Therefore, we suggest that prior knowledge activation

has also an effect on the writing skill and that brainstorming may be a useful strategy in the planning phase.. Moreover, and through our experiment, we noticed that brainstorming establishes a communicative mode of work in the classroom based on speaking and listening. Thus, we may think also of prior knowledge activation through brainstorming as a variable affecting the speaking and the listening skills.

Conclusion

Brainstorming proved to be an effective strategy in activating readers' prior knowledge about the informational text. Therefore, teachers of English as a foreign language should take it into consideration if they aim at achieving success in their reading classes. So many other prior knowledge activation strategies may help in activating readers' prior knowledge thus increasing their reading comprehension. This is likely to be of interest in further works of research.

CONCLUSION

The present study which aimed at investigating the degree of the impact of prior knowledge activation on readers' understanding proved that upper-intermediate learners' reading comprehension at the ENS of the informational text increases thanks to the prior knowledge activation strategy called brainstorming.

Readers' performance in the reading comprehension administered tests was high thanks to the experiment's treatment. The t-test; statistical test, administered on the findings showed the significance of the experiment's results. This helped us to establish the cause-effect relationship between our hypothesis' independent variable and the dependent one. In other words, confirming the truth of the prediction we supposed which claimed that prior knowledge activation of upper-intermediate EFL learners of the informational text will lead to increasing their reading comprehension scores.

EFL teachers are invited to recognize the importance of prior knowledge activation in their reading sessions. Brainstorming is the strategy we tested through this work of research and it proved to give valuable results in understanding the informational text. Thus, EFL teachers are provided with a possible solution for increasing learners' motivation and comprehension in tackling this type of texts. Teachers are also advised to profit from other prior knowledge activation strategies fitting other text genres which may be also beneficial to their readers' achievements.

This work of research may pave the way for further future predictions. Prior knowledge activation through brainstorming does not only affect the reading skill. It may have other effects on other language skills like writing. This may stand as a topic for a possible future paper of research.

APPENDIXES

Appendix I: Material One

Appendix II: Material Two

Appendix III: The Brainstorming Chart in Part One of the Experiment

Appendix IV: The Brainstorming Chart in Part Two of the Experiment

Appendix I

Material One

Money

Aristole, the Greek philosopher, summed up the four chief qualities of money some 2.000 years ago. It must be lasting and easy to recognize, to divide, and to carry about. In other words it must be, ' durable, distinct, divisible and portable', When we think of money today, we picture it either as round, flat pieces of metal which we call coins, or as printed paper notes. But there are still parts of the world today where coins and notes are of no use. They will buy nothing, and a traveler might starve if he had none of the particular local 'money' to exchange for food.

Among isolated peoples, who are not often reached by traders from outside, commerce usually means barter. There is a direct exchange of goods. Perhaps it is fish for vegetables, meat for grain, or various kinds of food in exchange for pots, baskets, or other manufactured goods. For this kind of simple trading, money is not needed, but there is often something that everyone wants and everybody can use, such as salt to flavour food, shells for ornaments, or iron and copper to make into tools and vessels. These things-salt, shells or metals-are still used as money in out-of-way parts of the world today.

Salt may seem rather as strange substance to use as money, but in countries where the food of the people is mainly vegetable, it is often an absolute necessity. Cakes of salt, stamped to show their value, were used as money in Tibet until recent times, and cakes of slat will still buy goods in Borneo and parts of Africa.

Cowrie sea shells have been used as money at some time or another over the greater part of the Old World. These were collected mainly from the beaches

of the Maldive Islands in the Indian Ocean, and were traded to India and China. In Africa, cowries were traded right across the continent from East to West. Four or five thousand went for one Maria Theresa dollar, an Austrian silver coin which was once accepted as currency in many parts of Africa.

Metal, valued by weight, preceded coins in many parts of the world. Iron, in lumps, bars or rings is still used in many countries instead of money. It can either be exchanged for goods, or made into tools, weapons or ornaments. The early money of china, part from shells, was of bronze, often in flat, round pieces with a hole in the middle, called ' cash'. The earliest of these are between three thousand and four thousand years old-older than the earliest coins of the eastern Mediterranean.

Nowadays, coins and notes have supplanted nearly all the more picturesque forms of money, and although in one or two of the more remote countries people still hoard it for future use on ceremonial occasions such as weddings and funerals, examples of primitive money will soon be found only in museums.

The Reading Comprehension Test

Select the answer which is most accurate according to the information given in the passage.

1- Aristotle said money should be
   a) made of metal.
   b) durable, distinct, divisible and portable.
   c) 2.000 years old.
   d) made of high-quality materials.

2- Nowadays we think of money as
   a) made of either metal or paper.
   b) pieces of metal.

c) Printed notepaper.

d) Useful for starving travelers.

3- In some parts of the world a traveler might starve

a) even if his money is of the local kind.

b) Even if he had no coins or notes.

c) If he did not know the local rate of exchange.

d) Even if he had plenty of coins and notes.

4- Barter usually takes the place of money transactions where

a) there is only salt.

b) The people's trading needs are fairly simple.

c) Metal tools are used.

d) Money is unknown.

5- Salt is still used as money

a) in Tibet.

b) In the Maldive Islands.

c) In several countries.

d) Only for ceremonial purposes.

6- Four or five thousand cowrie shells used to be

a) as valuable as a Maria Theresa dollar.

b) Valued because they were easy to carry.

c) Useful currency in South America.

d) The maximum one man could carry.

7- Lumps of iron or iron bare are

a) a substitute for money in some places.

b) Never exchanged for goods nowadays.

c) Exchanged for tools, weapons or ornaments.

d) Called 'cash' in China.

8- One type of early Chinese money was

a) made from bones.

b) called 'cash'.

c) better than eastern Mediterranean coins.

d) in the form of bronze bars.

9- The earliest known coins from the eastern Mediterranean

a) are as old as the earliest known Chinese coins.

b) are older than the earliest known Chinese coins.

c) are not as old as the earliest known Chinese coins.

d) were much larger than their Chinese equivalents.

10- Primitive types of money are sometimes used

a) to replace more picturesque forms.

b) in museums, as entrance fees.

c) at country markets.

d) at weddings and funerals.

Appendix II

Material Tow

To be or not to be a vegetarian

A strict vegetarian is a person who never in his life eats anything derived from animals. The main objection to vegetarianism on a long-term basis is the difficulty of getting enough protein-the body-building element in food. If you have ever been without meat or other animal foods for some days or weeks (say, for religious reasons) you will have noticed that you tend to get physically rather weak. You are glad when the fast is over and you get your reward of a succulent meat meal.

Proteins are built up from approximately twenty food elements called 'amino-acids', which are found more abundantly in animal protein than in vegetable protein. This means you have to eat a great deal more vegetable than animal food in order to get enough of these amino-acids. A great deal of the vegetable food goes to waste in this process and from the physiological point of view there is not much to be said in favour of life-long vegetarianism.

The economic side of the question, though, must be considered. Vegetable food is much cheaper than animal food. However, since only a small proportion of the vegetable protein is useful for body-building purposes, a consistent vegetarian, if he is to gain the necessary 70 grams of protein a day, has to consume a greater bulk of food than his digestive organs can comfortably deal with. In fairness, though, it must be pointed out that vegetarians claim they need far less than 70 grams of protein a day.

Whether or not vegetarianism should be advocated for adults, it is definitely unsatisfactory for growing children, who need more protein than they

can get from vegetable sources. A lacto-vegetarian diet, which includes milk and milk products such as cheese, can, however, be satis-factory as long as enough milk and milk products are consumed.

Meat and cheese are the best sources of usable animal protein and next come milk, fish and eggs.

Slow and careful cooking of meat makes it more digestible and assists in the breaking down of the protein content by the body. When cooking vegetables, however, the vitamins, and in particular the water-soluble vitamin C, should not be lost is negligible, because the cooking water is normally eaten along with the fruit, and acids in the fruit help to hold in the vitamin C.

Most nutrition experts today would recommend a balanced diet containing elements of all foods, largely because of our need for sufficient vitamins. Vitamins were first called 'accessory food factors' since it was discovered, in 1906, that most foods contain, besides carbohydrates, fats minerals and water, theses other substances necessary for health. The most common deficiencies in Western diets today are those of vitamins. The answer is variety in food. A well-balanced diet having sufficient amounts of milk, fruit, vegetables, eggs, and meat, fish or fowl (i.e. any good protein source) usually provides adequate minimum daily requirements of all the vitamins.

The reading comprehension

Select the answer which is most accurate to the information given in the passage.

1- A strict vegetarian

a) rarely eats animal products.

b) sometimes eats eggs.

c) never eats any animal products.

d) never eats protein.

2- We feel weak when we go without meat and other animal products

a) because we are reducing our food intake.

b) because we do not get enough protein.

c) because vegetables do not contain protein.

d) unless we take plenty of exercise.

3- Proteins are built up from

a) approximately twenty different foods.

b) about twenty different vegetables.

c) various fats and sugars.

d) about twenty different amino-acids.

4- Physiologically, life-long vegetarianism may not be good because.

a) it makes people very thin.

b) the body must process too much waste.

c) the farmers lose money.

d) vitamin-deficiency diseases may result.

5- One thing in favour of vegetarianism is that

a) vegetable food is easier to digest.

b) animal food is less expensive.

c) vegetable food is cheaper.

d) it is good for the digestion.

6- The body's daily need for protein is

a) 90 grams.

b) 50 grams.

c) 70 grams.

d) at least 100 grams.

7- the digestive organs can comfortably deal with

a) any quantity of food per day.

b) less than 70 grams of food per day.

c) a limited quantity of food per day.

d) any amount of vegetable foods.

8- Vegetarianism is not suitable for growing children because they

a) need more protein than vegetables can supply.

b) cannot digest vegetables.

c) use more energy than adults.

d) cannot easily digest milk and milk products.

9- Slow and careful cooking of meat

a) preserves the vitamins.

b) breaks down the vitamins.

c) makes it easier to digest.

10- Most nutrition experts today believe the food we eat should contain

a) more meat than vegetables.

b) more vegetables than meat.

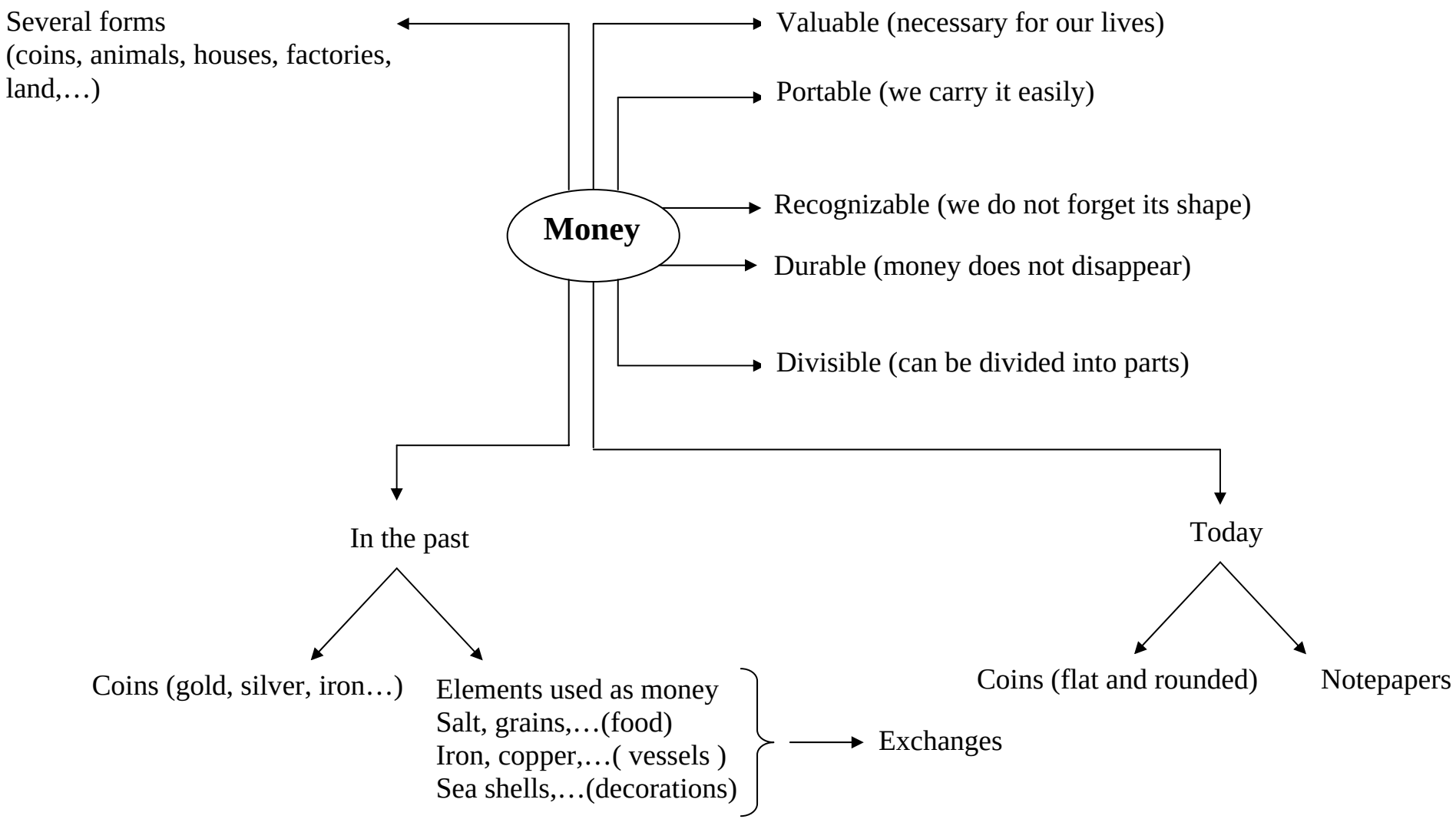
c) fruit, cereals and fish as well as meat and vegetables.

d) as many different kinds of vegetables as possible.

APPENDIX III

The brainstorming Chart of Part One of the Experiment

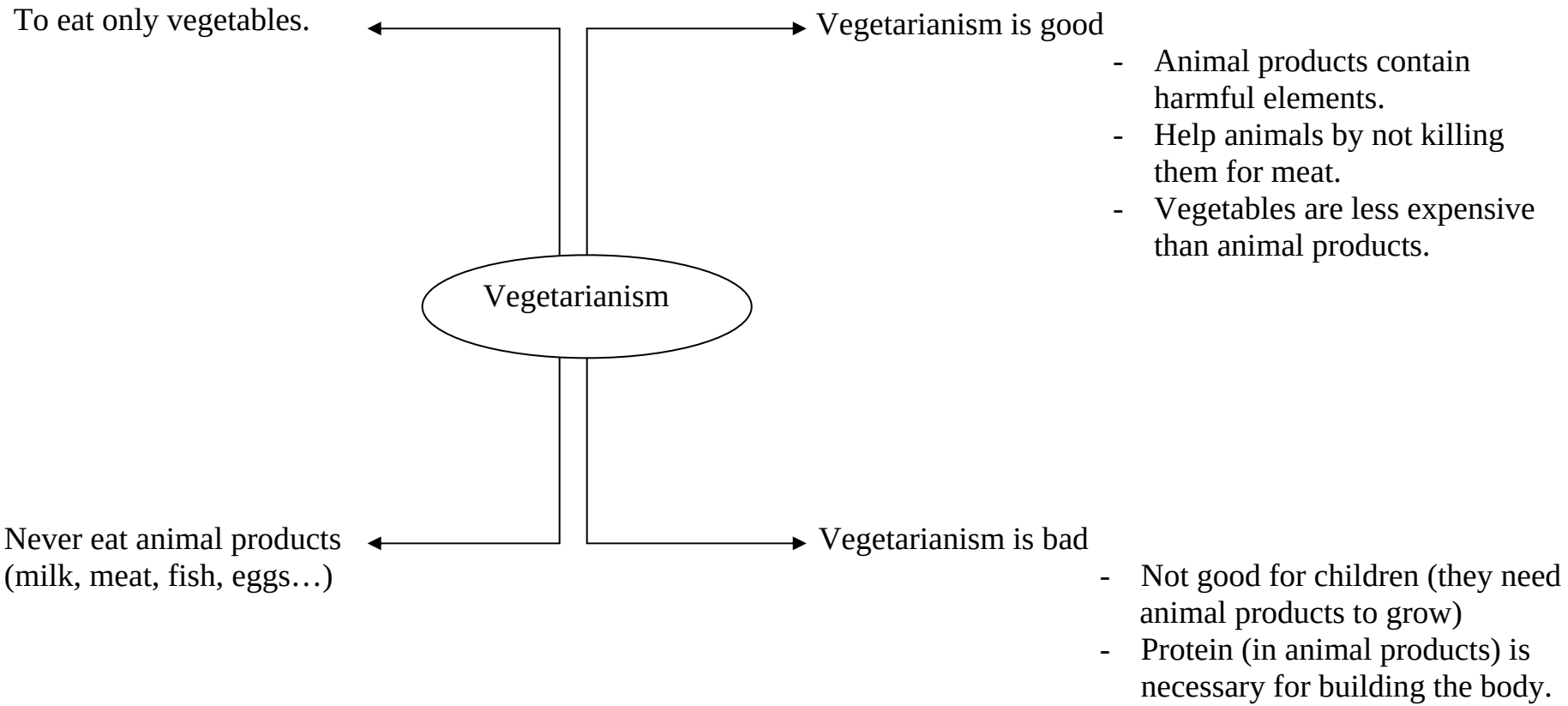
The following brainstorming chart is produced by members of the experimental group; Gr2 in Part One of the experiment prior to reading Text (1) entitled "Money" (See appendix I).


Several forms
(coins, animals, houses, factories, land,…)
Valuable (necessary for our lives)
Portable (we carry it easily)
Money
Recognizable (we do not forget its shape)
Durable (money does not disappear)
Divisible (can be divided into parts)
In the past
Today
Coins (gold, silver, iron…)
Elements used as money
Salt, grains,…(food)
Iron, copper,…(vessels)
Sea shells,…(decorations)
Exchanges
Coins (flat and rounded)
Notepapers

APPENDIX IV

The Brainstorming Chart in Part Two of the Experiment

The following brainstorming chart is produced by members of the experimental group, Gr1 in Part Two of the experiment prior to reading Text (2) entitled "To be or not to be vegetarian" (See appendix II).


To eat only vegetables.
Vegetarianism is good
- Animal products contain harmful elements.
- Help animals by not killing them for meat.
- Vegetables are less expensive than animal products.
Vegetarianism
Never eat animal products (milk, meat, fish, eggs…)
Vegetarianism is bad
- Not good for children (they need animal products to grow)
- Protein (in animal products) is necessary for building the body.

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Résumé

Les enseignants de l'anglais comme langue étrangère cherchent toujours la meilleure methode qui aide leurs étudiants à bien comprendre les textes de lecture. Malgré cela, ils s'interessent pas aux prerequis chez les étudiants concernant le vocabulaire, le style et le sujet d'un text avant sa lecture.

Si l'enseignant aide l'apprenant à retirer les informations requises concernant les textes proposés, il le rend prêt mentalement et psychiquement à les mieux comprendre. l'enseignant peux réaliser cela lorsqu'il note le titre d'un texte sur le tableau et invite les étudiants à lui donner toutes sortes d'informations lui concernant en toute liberté et sans aucune critique.

Le but de cette recherche est de montrer le degree d'importance des informations prerequises chez les étudiants de deuxième année à l'ENS avant qu'ils lisent le text et comment cala participe à augmenter leurs comprehension du contenue.

A fin d'atteindre ce but, on s'est basé sur une expérience qu'a été divisée en deux parties.Dans la première partie de l'expérience, les étudiants du groupe (1) lisent directement le texte(1) sans qu'ils étulisent leurs informations prerequises contrairement aux éléments du groupe (2). Dans la deuxième partie, on inverse l'opération en étulisant texte(2).Aprés chaque lecture dans les deux parties de l'expérience, on a testé la comprehension des deux groupes. Pour analyser les résultats on a établi un test statistique. Ce dernier a montré que les résultats obtenus sont trés positifs.

Les résultats obtenus nous mènnent à donner des propositions pour les enseignants de l'anglais comme langue étrangère en proposant une introduction qui précède la lecture dans laquelle l'étudiant donne ces prerequis du texte, en précisant les bases et les conditions de cette introduction.

ملخص

علي الرغم من إن معلمي اللغة الإ نجليزية كلغة أجنبية دائموا البحث عن المنهجية التي قد تساعد طلابهم على استيعاب نصوص القراءة بشكل جيد، نجد أنهم لا يولون أهمية كبيرة لما قد يمتلكه الطالب من معرفة مسبقة بموضوع النص ، مفرداته و اسلوبه قبل الشروع بقراءته.

إذا قام المعلمون بمساعدة المتعلمين عن طريق استراتيجيات مختلفة تتوافق مع أنواع النصوص المقرر قراءتها على استذ كار ما قد يملكونه من معلومات مسبقة على تلك النصوص، فإن مستوى فهمهم لها قد يزيد، حيث أنهم يصبحون اكثر إستعدادا من النا حية الذهنية و النفسية. من بين هذه الإ سترتيجيات: أن يقوم المعلم بكتابة عنوان النص على السبورة و يسأل الطلاب بإسترجاع ما يخزنون في ذاكرتهم من معلومات قد تكون على علاقة بالنص بكل حرية و بدون أى إ نتقادات للمعلومات المسجلة على السبورة.

يهدف هذا البحث إلى إظهار مدى أ همية أن يستذكر الطا لب ما يملك من معلومات على النص عن طريق استحضاره لها على السبورة بمساعدة المعلم قبل الشروع في القراءة، في زيادة نسبة إستيعاب ما يتضمنه النص.

لتحقيق هذا الغرض تم الإ عتماد على إختبار تجربة التى قسمت الى قسمين: القسم الأول و القسم الثاني. في القسم الأول من التجربة يقوم أعضا ء الفوج(1) بقراءة النص الأول مباشرة بدون اي محاولة لإستحضار مايعرفونه عنه، بينما أ عضاء الفوج(2) يقومون بذلك قبل قراءةهذا النص . في القسم الثاني من التجربة نقوم بعكس العملية بين أعضاء الفوجين باستعمال النص الثاني. بعد كل قراءة في كلا قسمي التجربة قيست نسبة فهم أعضاء الفوجين.لتحليل النتائج تم الإ عتماد على إ ختبار إحصائي. هذا الأخير ساعد على إ ثباث أن النتائج المحصل عليها في التجربة إ يجابية جدا.

معتمدين على هذه النتائج، نقوم بتقديم بعض الإ قتراحات و التي نخص بها مدرسي مادة القراءة باللغة الإ نجليزية كلغة اجنبية والمتمثلة في إدراج مقدمة تسبق القراءة يقوم فيها المتعلم بإ ستحضار ما يعرفه عن النص قبل قراءته مع ايضاح قواعد و شروط تحضير المقدمة الجيدة.