

The Effect of Content Schemata on EFL Moroccan Learners' Reading Comprehension: The Role of the Pre-Reading Activities

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Abstract

This study examined whether content schemata activation facilitate reading comprehension or not. It is motivated by two research questions: (1) does content familiarity facilitate reading comprehension? And (2) do teachers activate learners background knowledge? To examine these questions, the study used both qualitative and quantitative research methods to collect and analyse data. It was hypothesized that content schema activation facilitates reading comprehension. This article has two goals: (1) to identify the effects of pre-reading activities on Moroccan EFL students' reading comprehension through content schema activation, and (2) to translate the research findings into suggestions and guidance for textbook designers, teachers, and policy makers. Previous research has shown that providing learners background knowledge enhances their comprehension. Our most important contribution is to provide useful guidelines for actions and practice implications related to schema activation at the pre-reading stage in Moroccan EFL context. An experimental research study was conducted to test our hypothesis using students test score data to measure and compare the performance of the treatment group and the control group. The findings from the research show that the impact of content schema activation on reading comprehension is positive as assumed. The results, implications for teachers, and future research were discussed.

1. INTRODUCTION

The interest in reading and its role is not a 21st-century issue. It is an issue that many scholars have attempted to investigate many years ago, especially in the last 30 years. As a result, many valuable works on reading are available today. In the traditional approach, scholars considered readers as passive. For them, a good reader perfectly decodes a text's meaning, starting from letters to complex sentences. However, in the modern approach, reading is not only about decoding. In this model, readers are considered as active. They do not only decode meaning from the printed page but also bring their prior knowledge to the text. Therefore, this model encourages teachers to teach their students texts that are meaningful to students. As Katherine Patterson says

It is not enough to simply teach children to read; we have to give them something worth reading. Something that will stretch their imaginations-something that will help them make sense of their own lives and encourage them to reach out toward people whose lives are quite different from their own" (as cited in Harvey & Goudvis, 2007, p. 235).

Many scholars encourage the modern approach to be used in classrooms. Teachers who teach using the traditional approach will not make learners personally involved in the learning situation. Therefore, teachers should base their lessons on learners' background knowledge to make a reading session successful. It is not the text that should give meaning to learners, but rather it is students that should give meaning to the text. Yet, teaching reading comprehension skill is not an easy task. It is agreed that reading is a complex skill that goes through a complex process. (Wolf, 1993; Glynis Hannell, 2009; Linda Fielding and P. David Pearson, 1994). These have led researchers and practitioners to find the best method to teach reading

1.1. Background of the Study

This study assesses the effects of the activation of content schemata on reading comprehension. It is based on the premise that learners are not a blank slate. Therefore, in the pre-reading activities, teachers should connect what students already know about the text to what the text is about. The article encourages teachers to give more importance to pre-reading activities. It is expected that this research will help teachers and learners to make the best use of reading comprehension to be part of the 21st century.

1.2. Statement of the problem

The reasons for dealing with this topic are based on my personal experience with reading as a high school student. The first reason is that we never had pre-reading activities. I remember the first thing my teacher would ask us to do: open our textbooks and go to page x. Then, he will assign somebody to read aloud. In fact, more than half of the class used to read aloud without clear objectives. As a result, the reading comprehension session looked more like a pronunciation practice session. Secondly, the reading comprehension session was very mechanical. The teacher starts by asking us to open our textbook, go to page x, read aloud, answer the comprehension questions, and close the textbook. I have never felt involved in the text. The teacher did not present the reading comprehension text in a way that can be related to our experience as students. Moreover, if somebody mentions something unrelated to the text, the teacher would reject him. Consequently, we felt bored and lost interest in the text.

1.3. Purpose of the study

This study aims to investigate Moroccan EFL students' ability to understand the content of a given text through schemata activation. The study deals with learners' poor achievements in reading comprehension with the purpose:

To identify the effects of pre-reading activities on Moroccan EFL students' reading comprehension through content schema activation.

To translate the research findings into suggestions and guidance for textbook designers, teachers, and policymakers.

1.4. Research question

This study aims at investigating the following research question:

1. Does content unfamiliarity with the text affect reading comprehension?
2. Do teachers activate learners' background knowledge?

1.5. Hypothesis

H_1 : content unfamiliarity negatively affects the reading comprehension of Moroccan high school students. Students who were familiarized with the content of the text will score higher on a standardized reading comprehension test than students who were not familiarized.

2. REVIEW OF THE LITERATURE

2.1. Introduction

Reading is one of the greatest inventions of human being in history. This invention shows the greatness of the human mind. A mind that can process and handle complicated issues such as reading in different languages.

We were never born to read. Human beings invented reading only a few thousand years ago. And with this invention, we rearranged the very organization of our brain, which in turn expended the ways we were able to think, which altered the intellectual evolution of our species. (Wolf, 2007, p. 3)

According to Dambacher (2009), “reading is an outstanding achievement of the human brain” (p.1). However, defining reading is very complicated. It is complex because there is not one unified definition of the concept. Scholars from different disciplines, including psychologists, educationalists, and cognitive psychologists, have provided different definitions of reading. Flapp and Flood (1978) have grouped the definitions of reading into two categories. The first one views are reading as a decoding process. The second view considers reading a comprehension process (as cited in Romero & Romero, 1985, p.1). Moreover, in their book “Developmental Reading”, Angelita D. Romero and Rene C. Romero (1985) have listed a number of definitions of reading that were suggested by different scholars, which are listed as follows:

Reading is decoding written symbols.

Reading is getting meaning from the printed page

Reading is putting meaning into the printed page.

Reading is a process of communication between author and reader (p.2)

As defined above, reading is a process by which readers decode, receive and interpret information. Yet, it is not enough to read. The purpose of reading is understanding. Therefore, reading comprehension requires a bit more than just reading. Koda (2005) points out that “comprehension occurs when the reader extracts and integrates various information from the text and combines it with what is already known” (as cited in William Grabe, 2009, p.14). Consequently, it can be said that the understanding of a given text is the outcome of what is called reading comprehension.

2.2. Approaches to reading

When reading a given text, there are three main approaches in which readers go about reading text. It is either through using a bottom-up, a top-down, or an interactive approach. Cognitive psychologists have distinguished between these three cognitive approaches. They have investigated the way the human brain goes about processing texts. The following is an explanation of the three cognitive approaches:

2.2.1. Bottom-up approach

In the words of researchers, Mark Aronoff and Janie Rees-Miller (2001), bottom-up approaches are “those that take in stimuli from the outside world—letters and words, for reading—and deal with that information with little recourse to higher-level knowledge” (p.664). In other words, the reader approaches the text from within, starting from understanding letters, words, phrases, clauses, and sentences. Then, the reader moves to understand the whole text. This is more emphasized in J. Charles Alderson’s book (2000) “Assessing Reading”. He views bottom-up processes as “serial models, where the reader begins with the printed word, recognizes graphic stimuli, decodes them to sound, recognizes words and decodes meaning” (p.16). This way of

processing a text is traditional since it does not encourage the readers' critical thinking abilities. Everything students understand they should find support and have a reference in the text.

2.2.2. Top-down approach

On the other hand, top-down processing is more or less the opposite of bottom-up processing. Goodman, in his article "Reading: a psycholinguistic guessing game" (1967), devoted his study to rejecting the views that consider reading a precise process. Goodman is totally against the idea that reading involves exact, detailed, sequential perception and identification of letters, words, spelling patterns and larger language units.

Mark Aronoff and Janie Rees-Miller (2001) consider top-down processes as "the uptake of information that is guided by an individual's prior knowledge and expectation" (p.665). Put it simply, top-down processing of reading takes place when the reader uses his or her background knowledge to predict the meaning of the text. Smith (1971) and Goodman (1969) were among the first to emphasise the important role that the reader plays in reading and who disregarded the bottom-up approach.

2.2.3. Interactive approach

The above two models or approaches emphasize a one-way direction of approaching the text. It is either a bottom-up or a top-down approach to the text. Many scholars believe that comprehension results from an interactive process between the reader and the text. Rumelhart (1977) was the first to introduce an interactive processing model in which different levels of knowledge and textual information play a part in comprehension. The interactive models, attempting to be more comprehensive, rigorous, and coherent, emphasize the interrelations between the graphic display in the text, various levels of linguistic knowledge and processes, and various cognitive activities (p.113). The following figure by Carrell, Devine and Eskey shows the interaction between the different levels of graphics and knowledge. It also shows the act of combining information to produce the meaning of the text, which we can refer to as construction.

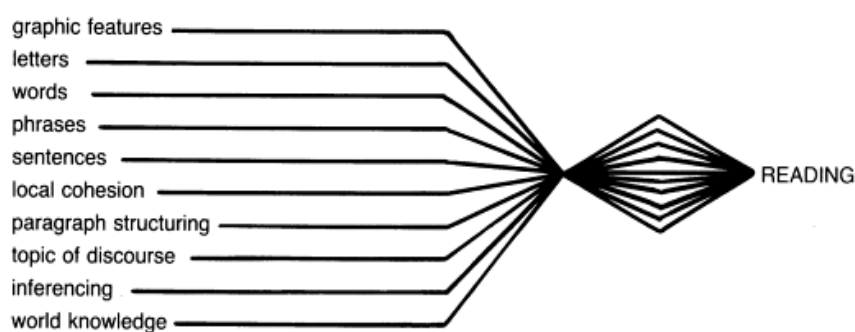


Figure 1 A simplified Interactive Parallel Processing sketch

2.3. Reading and cognition

Anderson, Hiebert, Scoll and Wilkinson (1984) argue that "reading is a far more complex process than had been envisioned by early reading researchers: above all, it is not a set of skills to be mastered" (as cited in Dole, Duffy, & Pearson, 1991, p.546). There are two major views of reading, a traditional view and a cognitive one. In the traditional view, as we have seen in the previous section 2.4.1 with J. Charles Alderson, readers are passive. According to Alderson, they are passive because they process the text in strict order, starting from the printed word to decoding meaning. Dole, Duffy, and Pearson (1991) note that

According to Linnenbrink and Pintrich (2003), "Cognitive theory, with its strong focus on the connection between language and thinking, places importance on the reader's ability to make appropriate choices between contextual cues and the ability to decode and comprehend read

text” (as cited in Woolley, 2011, p.17). First and second language studies have investigated the relationship between reading and cognition. No reading can take place without memory, especially long-term memory. To understand a text, readers must have some prior knowledge stored in their long-term memory. Therefore, when readers read, an interaction between the text and students’ knowledge is stored in long-term memory. Thus, this view does not consider readers as blank slates, and must rely on the text to achieve comprehension. It rather considers the reader as an active participant in meaning-making. The interaction between the text and readers’ prior knowledge is important to understanding a given text. The following diagram by Richard Kern (2000, p.67) illustrates the procedural knowledge necessary to process a given text.

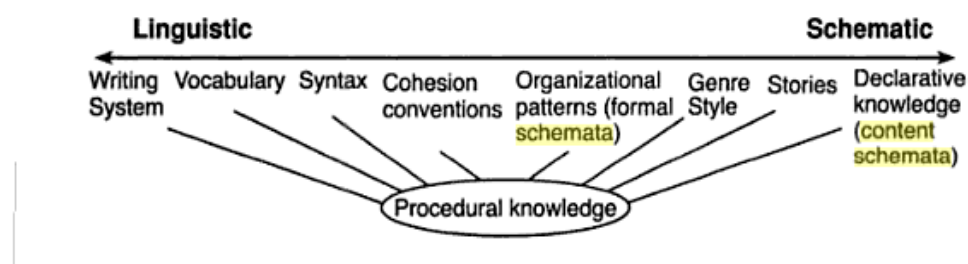


Figure 2 Continuum of availability designs on a linguistic-schematic axis

2.4.Schema theory

Schema theory is one of the most interesting areas of contemporary cognitive psychology. In the last few decades, many scholars started investigating schema's nature and functions. The term knew its way to the world of modern psychology through the writings of Bartlett (1932). He was the one to coin the term psychology and education. In fact, Bartlett’s work on schema has inspired most modern schema theories. He tried to understand how the human brain organizes information and comprehends text and related ideas. According to Khartite (2021), “schemata play such a highly crucial role in reading appears in a sense to attest to the value of carefully using appropriate pre-reading activities to achieving comprehension, especially of culturally loaded or domain-specific texts” (p. 15).

Bartlett (1932) defines schema as “an active organization of past reactions, or past experiences, which must always be supposed to be operating in any well-adapted organic response”. (p.201). That is, schema refers to what is already organized in the mind, which we might call “old knowledge”. And what is already organized in mind is brought up in response to a situation. New responses are related and generated by the well-adapted organic responses when there is a regularity of behaviour. In addition, one of Bartlett's major contributions to cognitive psychology is his hypothesis that schemas are complex unconscious knowledge structures. In other words, the old knowledge is unconsciously organized structurally in mind. What is most notable about Bartlett’s theory is that all new information interacts with the old information represented in the schema.

For Piaget (1952), the schema is considered “a cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning” (as cited in Tuchman & Monetti, 2012, p.46). Then, Schema is viewed by Piaget as a set of linked mental representations of the world, which we use both to understand and respond to situations. According to Piaget (1952), intellectual growth is a process of adaptation. In this regard, he presented two important concepts that this adaptation process is made up of: assimilation and accommodation.

3. METHODOLOGY AND RESEARCH DESIGN

3.1.Introduction

As mentioned in the introduction, this study deals with the role that schema activation in pre-reading activities can play in facilitating reading comprehension. Hence, the aim is to identify whether schema activation can have any positive impact on reading comprehension or not. This chapter is devoted to explaining the research methodology used to answer the research questions and hypothesis mentioned in the introductory chapter (see chapter 1). It explains the treatment, the participants, data collection and analysis methods.

3.2.Treatment

The participants of the experimental group received the treatment, unlike the control group. The treatment consisted of 8 sessions, each approximately 1-hour long. It was conducted in a group format. The text used was chosen based for two reasons—the first one is to fit the level of the learners. The second one is that the texts were of interest to learners. Because the focus was on the pre-reading activities, twenty minutes were devoted to engage students and activate their schemata.

The first four sessions were devoted to tackle the theme of education. Therefore, the texts were mainly about issues related to education in Morocco and outside Morocco. The last four sessions were devoted to tackle the theme of women. The texts were mainly about women status in morocco. They were also about comparing women of the past to women of today. Students were very motivated to talk and express their views about the topic. This made the understanding of the texts much easier.

3.3.Subjects

Fifty-one Moroccan high school students have served as subjects for this study. Their ages range from 15-17 years old. The students study at Abdrrahman Ennassr High School in Kenitra. It is located in a prestigious neighbourhood. Though, based on the interaction with students, many of them belong to a largely middle and lower socio-economic population. The sample consisted of two intact groups of first year baccalaureate. They are majored in science math and taught by the same teacher with 11 years of experience.

The number of students in the control group (SM1) is 30 with 15 males and 15 females. At the same time, the number of students in the experimental group (SM2) is 30, with 16 males and 14 females. The choice of which group was to be controlled or experimental was random. A placement test was employed as it was necessary for the participants to have equal command of the English language. The participants of the study were selected based on the results of the placement test.

Table 3

Gender make-up of the subjects

Experimental			
		Frequency	Percent
Valid	Male	16	53.3
	Female	14	46.7
	Total	30	100.0
Controlled			
		Frequency	Percent
Valid	Male	15	50.0
	Female	15	50.0
	Total	30	100.0

3.4.Materials and instruments

The texts for this study were chosen from an EFL educational website. The texts which were employed during the instructional practice procedure focused on two main themes, namely education and women. The texts included different topics such as the relationship between teachers and students, women and education, etc.

To gather data, three instruments were employed in this study: a placement test, a reading comprehension test, and a semi-structured interview.

A proficient reading test was selected from the TOFEL website but adapted to fit the level of the learners. It was administered to all the participants in both the experimental and the control groups twice, once as a reading comprehension pre-test before embarking on the study and another time as a post-test at the end of the study. The test topics were related to the topics of the student's textbook taught in the class.

3.5.Design

To carry out this study, both qualitative and quantitative methods are used. The research design used is an intact group-single control design. The reason for choosing this research is that the students are not randomly selected for the course. Students are already assigned groups based on some administrative principles. These kinds of groups are called intact groups. The following is a representation of this design:

Table 3

Research design

G ₁ (intact) X ₁ -T- X ₂
G ₂ (intact) X ₁ -O-X ₂

G₁ in the table stands for the experimental group, which receives the treatment (T). G₂ stands for the control group, a group which will not receive the treatment (O). Intact means that the groups compared are intact. At the same time, X₁ and X₂ stand for the pre-test and post-test.

The pre-test is given before the study begins to determine the homogeneity of the intact control group and the intact experimental group concerning reading comprehension (the dependent variable). Similarly, after the experiment (treatment), a reading comprehension post-test was administered to assess the similarities/ differences between the two intact groups, each having been exposed to different independent variables (methods of teaching).

A reading comprehension test of pre-intermediate is administered as a pre-test to analyse and compare the control and experimental groups. An independent t-test was run at .05 level to determine if the two groups were homogeneous in the area of reading comprehension.

The post-test data collected from the results of the reading comprehension test of pre-intermediate was employed to determine how significant a difference in test scores occurred in the two groups at the end of the study. An independent t-test was run at the .05 level on the results to determine if significant differences occurred.

Table 5

Brief description of the study

Research hypothesis?	There is no effect of content schema activation on reading comprehension (i.e, there is no difference in the means of the experimental and control groups)
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Significance level?	0.5
1-Or 2- tailed?	2- tailed
Design	
Dependent variable?	Reading comprehension
Measurements?	Scores (interval)
Independent variable?	Content schema
Measurement?	Nominal (experimental vs. control
Independent or repeated measure?	Independent
Other features?	Intact groups
Statistical procedure?	T-test

3.6.Data collection method

3.6.1. Placement test

To make sure that learners have equal command of English language, a placement test of English was used. The test used to evaluate the participants was adopted from a TEFL website (**see appendix**). it is a test designed mainly for beginners. The main goal of using this test is to feel certain that the participants in both groups (control and experimental) had an equivalent level of English proficiency. The original test composed of 100 multiple choice items. However, some items were deleted. The reason for deleting some items is to make it appropriate to the time available to students to finish the test. The learners were given enough time to answer the questions.

The scores obtained from the test shows that the level of proficiency of experimental and control groups is relatively equal and the variance in their mastery of language is insignificant ($t_{(57)} = .98$, $p > .05$; see table 6)

Table 6
Group Statistics

Placement Test		N	Mean	Std. Deviation	t	df	Sig (2 tailed)
Scores	Experimental	30	10.1167	3.52010	-.984	57	.329
	Controlled	29	11.1552	4.53775	-.980		.332

Notes: df degree of freedom

3.6.2. Pre-post-tests

The subjects were administered a reading comprehension test with multiple choice questions. The length of the passage varied between 400 and 600 words—the distractors of the multiple choice questions varied between 4 and 5. The purpose of the pre-test is first to measure students' reading comprehension ability and pre-existing knowledge. Secondly, it is used to compare the results of the pre-test with the results of the post-test. Thirdly, to see if the group is homogenous and has the same level regarding reading comprehension. The results will allow us to say whether to prove or reject the null hypothesis.

The pre-post tests were adopted from a TEFL website. However, some items were added and some other items were modified to suit the objectives of the lesson. For example, the added questions were not about the text. The main purpose of the added items is to test students background knowledge. They are examples of questions used in the pre-reading activities. **(See samples of pre-test and post-test in Appendix)**

3.6.3. Test procedures

Students were given comprehension texts of about 400 words. The students were asked to read the text carefully and use their background knowledge to understand and answer the comprehension questions.

The pre-test was administered on the second day of the first week of the practicum before the intervention. The test was administered to both groups at the same day with the same conditions. The post-test was administered one day before the end of the practicum. Both groups had the same test with the same conditions.

Each test lasted thirty-five minutes long. The first five minutes were used for the administration of the test. The administrative stages of the pre-test and post-test of both groups were equivalent. Both groups set for the test in the classroom.

Learners were not allowed to use their dictionaries.

Criteria for scoring pre-post test

The pre-test and post-test were corrected using the following criteria.

For questions that required literal comprehension of the text, 1 point

For questions that required inferential comprehension of the text, 2 point

For questions that required evaluative comprehension of the text, 2.5 point

Incorrect item, 0 point

3.6.4. Semi-structured Interview

At the end of the practicum and after the post-test, a semi-structured interview with two teachers was scheduled according to narrative principles. Each teacher was interviewed once for about ten minutes. The purpose of interviewing the teachers is to get data concerning their experience with teaching reading. The interview questions were designed to gain knowledge about how the teachers teach reading specifically. The questions were very specific to ensure they conveyed the right meaning **(see Appendix)**. The interviews were recorded and then analysed.

The informants had the chance to review the interview questions in advance to prepare for the interview. The purpose of giving them the interview questions beforehand is to make them reflect upon their answers. The questions of the interview were related to the teacher's experience in teaching reading, their views about the best way to teach reading, and the obstacles that face students' reading comprehension.

3.6.5. Data analysis procedures

The data obtained from the two instruments were analysed to answer the research questions mentioned in chapter one **(see 1.4)**.

As far as the quantitative data is concerned, the results attained from the pre-post-tests of the control group, who received skilled based instruction, and the experimental group, who did

receive the treatment, were statistically compared to find the extent to which the treatment was effective.

The Statistical Package for the Social Sciences (SPSS) was used to analyse the test scores. To examine if content schema activation had any effect on the reading comprehension of learners in the experimental group, independent samples t-test was used to check if the mean scores of the experimental and the control group in the pre-test and post-test were significantly different or not.

4. DATA ANALYSIS AND INTERPRETATION

4.1.Introduction

This chapter introduces quantitative and qualitative data analysis. It presents the results of the study. Data analysis is followed by data interpretation and discussion. As mentioned before, the Statistical Package for the Social Sciences (SPSS) is used to analyse quantitative data. As mentioned in section 1.3, the results of the study are presented in the context of the following research question:

Does content unfamiliarity with the text affect reading comprehension?

The research question is converted into the following null hypothesis to ensure its testability through the data acquired from the study participants.

H₀: content unfamiliarity negatively affects the reading comprehension of Moroccan high school students.

4.2.Pre-test

As mentioned in chapter three section 3.8, the main purpose of the pre-test is to see if the two groups are homogenous and have more or less the same level. Therefore, an independent t-test is run at the .05 level. Based on the results of the t-test, as shown in table 6, the two groups are similar. Therefore, the study continued.

Table 7.
Descriptive statistics of the pre-test

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	5.00	15.00	10.6833	2.67647
Control	30	4.00	15.50	10.1000	3.00115

Notes: N= Number. Std= standard

The table above describes the difference between the experimental (N=30) and control group (N=30) in terms of the mean and the standard deviation. The mean and standard deviation for the experimental group is M=10.68 (SD= 2.67), while the mean and standard deviation for the control group is M=10.10 (SD=3.00). Based on the descriptive results of the table above, the mean and the standard deviation of the experimental group is higher than that of a control group. However, it can not be claimed that the two groups are not homogenous. It is difficult to judge whether the difference between the two groups is significant. Therefore, a more detailed description of the results is needed.

Consequently, Independent sample t-test is used to examine the differences between the experimental and control groups regarding their homogeneity and level. More data result is presented in the following table

Table 8.
Group Statistics

Score	Pre-test	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
s	Experimental	30	10.68	2.67647	.795	58	.430
	Controlled	30	10.10	3.00115			

Notes: sig.= P-value

The Sig. (2-tailed) value of the pre-test is 0.43. this value is greater than .05. because of this, we can conclude that the two groups are homogenous. Therefore, the two groups are perfect to start the experiment and ready for the treatment. Figure 3 shows the graphs based on the result from table 7.

Figure 3 mean differences for the scores in experiential and control groups Post-test after implementing the

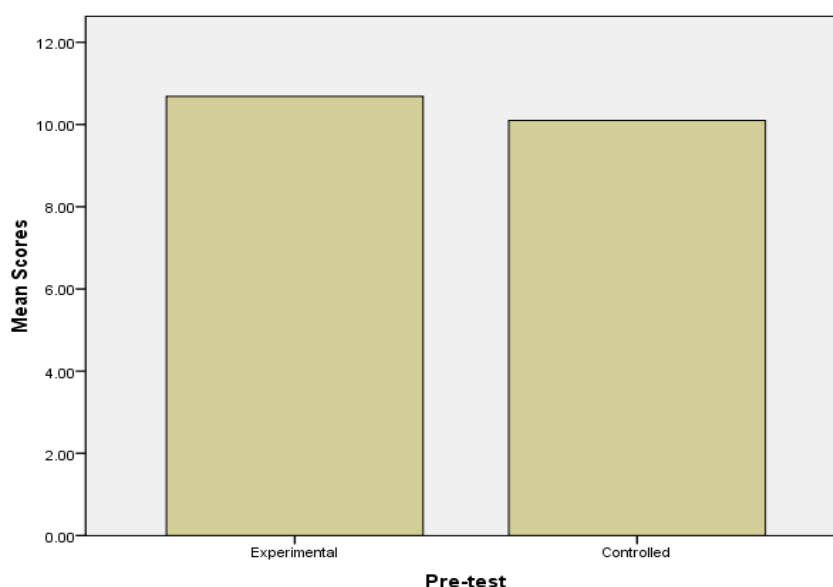


Table 9.
Descriptive statistics of the post-test

	N	Minimum	Maximum	Mean	Std. Deviation
Experimental	30	6.50	18.00	13.2667	3.12038
Control	30	4.00	15.50	10.9333	2.65139

Notes: N= Number. Std= standard

The above table presents and describes the differences between the experimental and control group in terms of the number of participants, the mean and the standard deviation. The number

and the mean for the experimental group are (N=30, M=13.26), while the number and the mean for the control group are (N=30, M=10.93). Concerning the standard deviation of the two groups, the standard deviation of the experimental group is (Std. deviation= 3.12), while the standard deviation of the control group is (Std. deviation=2.65). Based on the table's descriptive results above, both groups' results have improved in comparison with the pre-test results. Yet, the experimental group's mean and standard deviation is still higher than that of the the control group. However, at this stage, relying on the mean and the standard deviation is not enough to claim that there is or is not a significant difference between the two groups.

Therefore, using an alpha level of .05, an independent –samples t-test is conducted to evaluate whether the experimental group who received the treatment, content schema activation, differed significantly from the control group who did not receive the treatment. The following table is used to see if there is any significant difference between the two groups.

Table 10.

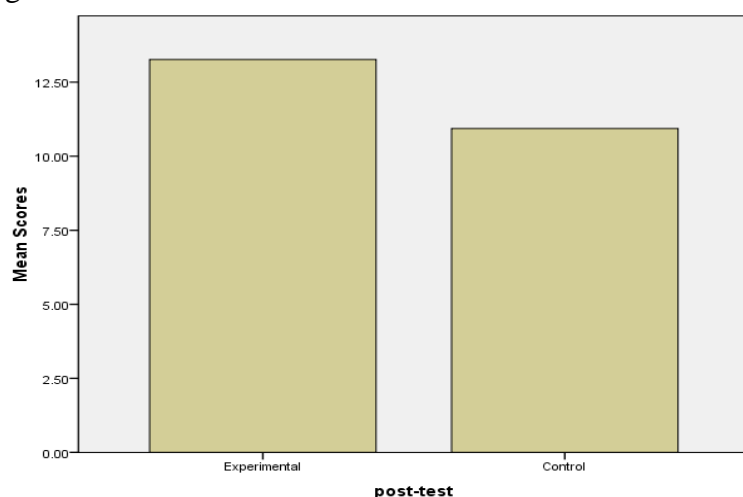
Group Statistics of t-test

Scores	Pre-test	N	Mean	Std. Deviation	t	df	Sig. (2- tailed)
	Experimental	30	13.2667	3.12038	3.121	58	.003
	Controlled	30	10.9333	2.65139			

Notes: sig.= P-value

An independent-samples t-test is conducted to compare the effects of content schema activation on reading comprehension in the experimental group. The results show that there is a significant difference in the scores for the experimental group (M=13.26, SD=3.12) while the scores for the control group (M=10.93, SD=2.65); $t_{(58)} = 3.12$, $p = .003$. These results suggest that content schema activation really does affect reading comprehension. Specifically, our results suggest that when learners' schema is activated, their comprehension of texts increases. It provides an affirmative answer to the research question; therefore, the null hypothesis is rejected. Figure 3 shows the graphs based on the result from table 7.

Figure 4 mean differences for the scores in experiential and control groups



5. DISCUSSION

This study aimed to investigate the effects of content schema activation on reading comprehension. It was predicted that when the content of the text is activated and facilitated, learners find it easy to understand the text, and when learners read a text that is not part of their

schema, they find it difficult to comprehend the text. In this study, about the research question, the results acknowledged the positive effect of background knowledge on reading comprehension. Those who were exposed to the treatment scored better than those who were not exposed to the treatment. Thus, the hypothesis was supported.

The findings of this study are consistent with those of Bader (1992), where content familiarisation facilitated reading comprehension. Both studies support the claim that content schema activation facilitates text comprehension. However, the procedures that were used in both studies are quite different. In his study, Bader focused on story recall. In other words, he showed that when learners are presented with a story they are familiar with, they tend to recall more about the story. Learners succeed in recalling the story because they are pre-equipped with the schemata needed to understand and recall the story. Unlike Bader, this study did not focus on recall but rather on comprehension of a text based on their pre-existing knowledge.

Moreover, the finding of a study conducted by Carrel (1981) is consistent with the findings of this study. Unlike Bader, Carrel focused on both comprehension and recall. After presenting the participants with different stories of different cultures, learners of those cultures comprehended and remembered more about the events of the stories. This is simply because of their background knowledge about their culture.

In addition to that, Koh (1932) conducted a study in which the findings of the study confirmed the alternative hypothesis of this study and the studies of both Bader (1992) and Carrell (1981). However, his study focused on the cultural background knowledge of the learners. Therefore, the experimental group received cultural training that enabled the group to perform better than the control group.

The studies mentioned above are consistent with the results obtained in this study. All of the above studies tried to show the importance of background knowledge on comprehension and recall. However, the focus of each study was quite different. Some focused on comprehension, while others on recall. Some dealt with background knowledge in general, while others focused on culture in particular. This study has focused on a content schema related to the text under study.

This study's results will surely contribute to the development of English language teaching in Moroccan classrooms if given the necessary attention. The results provide practical suggestions for making reading comprehension more accessible for learners. Teachers should make the best use of the pre-reading activities. In the pre-reading stage, teachers should prepare learners for the content of the text. If they are not ready to read, it is advised to try more activities to help learners make links between what they might know and the content of the text.

In conclusion, the results of this study provide some fascinating insights into the effects of content schema activation. Consistently with the predictions, providing activities in the pre-reading stage make learners do one of the following: they either try to activate their prior knowledge of the text in which they refer to pre-existing knowledge, or they create a new schema to fit into the required knowledge. In both cases, the role of the teacher is crucial. He either activates the pre-existing knowledge of learners or creates a new one through different pre-reading activities.

6. GENERAL CONCLUSION

Over the previous two chapters of the research, I have discussed the findings of the content schema activation in the context of Moroccan EFL learners. This last chapter summarises these findings. It presents the study's main contributions and implications for policymakers and textbook designers in general and the teachers in particular. The study's limitations and suggestions for future work are also discussed.

The study was set out to explore the concept of schema in relation to reading comprehension. An attempt has been made to determine the effects of content schema activation on reading comprehension. The quantitative analysis procedures assessed the performance of learners in relation to their reading comprehension. The qualitative data, on the other hand, focused on teaching English in general and reading comprehension in Moroccan classrooms.

The findings of chapter four pointed to the fact that content schema activation plays a significant role in the comprehension of texts. In this study, the two groups exhibited differences in their performance. The data analysis in chapter 4 demonstrated that learners who were familiarized with the content of the text scored better than those who were not familiarized with the content of the text. This indicates that the pre-reading stage is the most important one in reading. Teachers who disregard this stage make it difficult for their learners to use the text best.

6.1. Implications and recommendations

Teaching English is more than speaking English. Teaching is an art that requires skills and talents. Talented teachers are committed to students and their learning. The current study's findings suggest practical implications and recommendations to insist on familiarizing learners with the content of the text.

It is imperative to reconsider the nature and processes of reading comprehension within Moroccan schools by encouraging teachers to activate learners' schema. Moreover, negotiation and participatory decision-making between instructors and administrators and syllabus designers are compulsory for establishing explicit guidelines for program model guiding the selection, actualization, and assessment of reading comprehension. For instance, teaching reading skills could be more effective if the teacher considers knowledge holders rather than blank slates. Syllabus. Finally, balancing the amount of content knowledge and practice, and tuning instruction to students' learning rates and the teaching context emerges as the prime prerequisites for developing the CT&A course.

6.2. Limitations

The external validity of this study was threatened on two levels: 1) the treatment group was composed of students from two different CT classes instructed by two different course contents and perhaps through varied teaching methodology. Thus, the generalizability of the findings to other contexts is limited. 2) The quasi-experimental design did not allow sampling randomization nor valid comparisons of the treatment and control group before the CT intervention despite adding an extraneous independent variable (students' scholastic scores) for that purpose. Next in line, the inconvenient phase of data collection (students had been on a University strike, and data was collected on three different occasions) could have affected the quality of the respondents' responses and possibly the overall statistical verdicts. The difficult nature of CT testing and the limited number of AET and ACT used testing constructs could have also threatened the internal validity of the findings. Ultimately, the forgoing acknowledged methodological issues do not necessarily detract from the practicality of the findings of the current course evaluation.

6.3. Further research

The inaugural phase of teaching critical thinking skills invites teachers, students, and researchers for further empirical work in the Moroccan EFL context. This study serves as a platform to reconsider and rethink the objectives, contents, and teaching and learning practices of the courses that are taught in Moroccan universities. Many emergent issues from this study can function as the starting foci of future studies, including:

I was searching the effect of learner and teacher factors on the instruction and learning of the CT skills, especially argumentation skills.

Probing the relationship between socio-cultural and psychological dimensions and learning CT and argumentation skills in the EFL Moroccan context.

Investigating the instructional and learning processes that support or inhibit the learning and teaching of CT skills in the Moroccan context.

Exploring the strategies that university students employ in the construction of argumentative discourse.

Identifying the role of the native language and context in learning and teaching CT and argumentation skills.

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