A STUDY ON THE EFFECT OF CONTENT SCHEMATA ON READING COMPREHENSION PERFORMANCE

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Abstract

Abstract: This study aims at describing the effect of the third semester students' religious knowledge on their literal and inferential comprehension. This study is experimental since it is experimental in nature. The design used is called post-test only controlled group design. The analysis presented statistically. In conducting the analysis the writer applied statistical technique using t-test because the data were in the form of test scores representing the third semester students' literal and inferential reading comprehension performance. The data representing the third semester students' literal and inferential reading comprehension performance were collected using reading test in multiple choice format. Two texts on the basis of which test items were developed dealt with Christmas Eve and Ramadhan Eid. These two texts were selected for the two celebrations are most popular religious events in Christian and Moslem religious group. The sample of this research were taken from the third semester students of English Education Department FBS UNIMA in the academic year of 2014/2015. The total number of students is 30 consist of 15 students of Christian and 15 of Moslem. The analysis shows that the third semester students' content schemata significantly affect their literal and inferential comprehension of religious-related texts. Other researches concerning the effect of content schemata still need to be conducted in order to get more accurate or valid information

Keywords: ***religious knowledge, content schemata, literal comprehension , inferential comprehension***

Introduction

Reading has been one of the four language skills considered to be the most important of all. Through reading we can develop our language and communicative competence. Reading allows us to increase our vocabulary, knowledge of grammar, text structure. This, in turn, helps us develop our oral and writing skills. The acquisition of new knowledge is in great measure dependent on reading comprehension. That is why reading is sometimes considered as the window of the world. The importance of the skill is expressed nicely in this expression: to overcome our stupidity, read a lot.

Reading itself is defined in a number of ways. In general, it is defined as a process of making sense out of printed texts. The simple view of reading (Hoover & Gough, 1990) proposes that reading comprehension is the product of accurate identification of the printed words (decoding) and the semantic and syntactic

relationships among words and phrases (linguistic comprehension). The process as entails two ideas: (a) readers play an active role in comprehending because they gather the meaning that the text explicitly conveys and construct their own meanings based on their background, and (b) at least two entities are involved in comprehension: the reader and the text. In a process as such, the readers often rely on both linguistic information in the text and some related or relevant background knowledge. Anderson (1999:1), for example, explains, "Synergy occurs in reading, which combines the words on the printed page with the reader's background knowledge and experiences. This means that in the process of making sense out of the printed text, the readers rely on both their knowledge of the language and their related background knowledge. Briefly, reading is considered as an interactive process which involves the text and readers' background knowledge (Grabe & Stoller, 2002).

The idea that reading is an interactive process stems from cognitive learning theory, more popularly known as schema theory. Schema theory is a theory of knowledge stored in our memory. A schema is an abstract knowledge structure; it structure in the sense that it represents relationships among its components known as nodes (Anderson & Pearson, 1984:259). Rumelhart (1980:40) noted, "... a schema theory is basically a theory about knowledge. It is a theory about how knowledge is presented and how that representation facilitates the use of knowledge in particular ways." Proponents of this theory believe that in order for acquisition of new knowledge to take place and to be meaningful, new knowledge should relate to knowledge stored in the brain. Schema itself falls into two categories: formal schema and content schema. Formal schema is the knowledge of a reader has about the rhetorical organizational structures of different types of texts. Content schema, on the other hand, is the background knowledge a reader bring to a text. Content schemata are all the chunks of information a reader has gained through a lifetime of direct or indirect experience (Carrell 1987:461).

From the perspective of the above-mentioned theory, experts in reading in L1 and L2 claim that a text itself does not carry any meaning, or no text by itself carries meaning (Jalilifar & Assi, 2008) or as Jane Tompkins stated, "Meaning has no existence outside of its realization in the mind of the reader" (cited in Swaffar,1988:123), or meaning is not found in the text; rather it is found in the reader (Carrell,1984). The fact that no text by itself carries meaning indicates that successful or unsuccessful comprehension of a printed text relies largely on whether the reader is familiar with the topic of the text being read or not. Singhal (1998) puts it, "Both native and non-native readers will understand more of a text when they are familiar with text content. Consequently, an L2 reader who does not possess such knowledge can experience schema interference or lack of comprehension". Put it briefly, the more familiar the text content to the reader, the easier the text is comprehended.

Studies dealing with content schemata in reveal that familiarity with text contents have been done by a number of researchers. Pulido (2004) and Salmani-Nodoushan (2003) found that texts which contain culturally familiar content schema are easier to process. Johnson (1982) compared ESL students' recall on a reading passage on Halloween. Seventy-two ESL students at the university level read a passage on the topic of Halloween. Results

suggested that prior cultural experience prepared readers for comprehension of the familiar information about Halloween on the passage.

Bensoussan (1998) examined the effects of faulty schemata on reading comprehension. The findings showed that use of wrong schemata or prior knowledge was a significant factor influencing test scores. Similarly, Salmani-Nodoushan (2003) investigated the effects of text familiarity, task type, and language proficiency on university student's test and task performances. The results showed that their overall test performance was found to be significantly influenced by text familiarity, language proficiency and the interaction between text familiarity and language proficiency. Sasaki (2000) investigated how schemata activated by culturally familiar words might have influenced students' cloze test-taking processes. Two groups of Japanese EFL learners with equivalent English reading proficiency completed either a culturally familiar or an unfamiliar version of a cloze test. Results demonstrated that those who read the culturally familiar cloze text tried to solve more items and generally understood the text better, which resulted in better performance, than those students who read the original text. Al-Fallay (1994, as cited in Oller, 1995), who examined the effect of cultural familiarity on Arab EFL students' cloze test performance over a three month period. In his study, he used two narratives. Results indicated that the experimental group performed better on all ten cloze tests owing to the conformity of the textual material to their socio-cultural expectations. All the above-mentioned studies (there are many more) indicate that content familiarity positively affects comprehension; however, none of them specifically describe the effects of text familiarity on literal and inferential.

In reading any text in an attempt to understand it, students (or readers) go through two important mental processes to reach the point of comprehension. These processes are highly connected to each other and no one can occur without the existence of the other. The first one is called the literal mental process in which the student's brain executes a process of matching between the sentences, vocabulary and grammatical structures in the reading text and to their equivalent images in the student's brain. The more images stored in the student's brain, the higher level of reading comprehension is achieved. The second mental process that goes in the student's brain is called the inferential process of comprehension. It is based on the first process yet it is more complicated and deeper as it involves more factors than the first. To reach the level of inferential comprehension, students are required to connect two or more bits of explicit information in the text they read to reach to a third one that is implicit. This is achieved by employing some reading strategies like reasoning, connecting and drawing conclusions and some prior knowledge about the subject of the text or the subject of discussion.

Based on the description in this which emphasizes the effect of related-background knowledge or text familiarity and common practice in teaching reading which is focused on literal comprehension, I, therefore, specifically address the following research questions:

1. Do the third semester students' content schemata significantly affect their literal comprehension of religious-related texts?
2. Do the third semester students' content schemata significantly

affect their inferential comprehension of religious-related texts?

Based on the above-mentioned research problems, it is hypothesized that:

1. The third semester students' content schemata significantly affect their literal comprehension of religious-related texts?
2. The third semester students' content schemata significantly affect their inferential comprehension of religious-related texts?

For the purpose of statistical interpretation, the above alternative hypothesis were converted into the null hypotheses as these:

1. The third semester students' content schemata do not significantly affect their literal comprehension of religious-related texts.
2. The third semester students' content schemata do not significantly affect their inferential comprehension of religious-related texts.

Literature Review

Schema Theory

The cognitive theories introduced the concept of a thinking mind. Within these theories, learning is understood as a process of active construction whereby each individual makes sense of new information in his/her mind by mapping it onto his/her existing framework of knowledge and understanding. The incorporation of new knowledge leads to a restructuring of the individual's conceptual map. These theories also highlight the fact that new knowledge can only be taken in when connected to existing knowledge structures. In this sense, learning involves a process of making connections - reorganizing unrelated bits of knowledge and experience into new patterns, integrated wholes. Students learn by relating new experiences to what they already know. Learning involves making new meanings which are generally expressed through language. In this way learning, language, meaning and thinking are closely related.

Schema theory is one of the cognitive theories that is usually used to explain the relationship between past experience or prior knowledge, or technically called schema (plural: schemata). The term schema itself stem from Bartlett (1932). In his *book Remembering: A study in experimental and social Psychology, Bartlett claimed* "Human memory consists of high level structures known as schemas, each of which encapsulates our knowledge about everything connected with a particular object or event. These schemas represent the general knowledge which aids the understanding of conversations and texts, as well as real-life events. Rumelhart (1980) put forward the concept of schema theory basically as a theory of how knowledge is mentally represented in the mind and used. He wrote, “All knowledge is packaged into units. These units are the schemata”. Later Widdowson (1983) defined schema as "Cognitive constructs which allow for the organization of information in a long-term memory". From the above definitions, it can be concluded that schema is an abstract structure of knowledge or prior knowledge gained through experiences stored in one's mind.

Background knowledge that readers make use of during their engagement with the text is of various types. Singhal (1998), for example, identified several types of *schemata: formal schema or textual schema, content schema, and cultural schema.* Linguistic schemata refer to readers' existing language proficiency in vocabulary, grammar and

sentence structure. As the basis of comprehension, language knowledge plays an important role on understanding of the text, especially for learners at the elementary stage of learning. Without basic language knowledge, no reading strategy or skill can function effectively. Therefore, the more language schemata readers have in their mind, the more information readers may acquire from the text, and the more effective readers they may become.

Formal schemata refer to the organizational forms and rhetorical structures of written texts, including knowledge of different text types and genres, and the acknowledgement that different types of texts use text organization, language structures, vocabulary, grammar and level of formality differently. Carrell (1984) made an experiment to investigate whether we can facilitate ESL/EFL reading comprehension by teaching text structure based on schematic knowledge. The result of the experiment indicated that explicit teaching of the text structure can improve students' reading comprehension. Different reading materials bear different characteristics and pose the correspondent reading requests for readers. A suitable employment of formal schemata plays a significant role in reading.

Content schema or cultural orientation refers to the knowledge relative to the content domain of reading materials, which is the key to the understanding of a text. As a language is not only consisted of vocabulary, grammar and sentence structures, it is also the carrier of different levels of culture. Studies proved that content schemata affect comprehension and remembering more than formal schemata do for text organization. Readers remembered the most when both the content and rhetorical forms were familiar to them while unfamiliar content may cause more difficulties in correct comprehension.

Some others classify schema into three types: formal schema, content, and cultural schemata (Carrell & Eisterhold, 1983 & Nassaji, 2002). The first refers to knowledge of language and linguistic conventions (Alderson, 2000). The second refers to knowledge of the content (Carrell, 1983) or subject matter knowledge. The third refers to cultural knowledge or cultural familiarity. Cultural schema is also known as abstract schema (Nassaji, 2002), or story schema (Mandler, 1984). Still some others classified schema into two types only: formal schema and content schema (Ajdeh, 2006). In this classification, linguistic schema is included in formal schemata, whereas cultural schema is a part of content schemata. According to Ketchum (2006), cultural schema itself is a culture-specific extension of content schema.

Models of reading process

Reading, so far, has been defined in accordance with the schools of thoughts which in psychology and linguistics. Psychologists have generally distinguished three kinds of processing information processing: bottom-up model, top-down model and interactive model.

First, according to proponents of behavioural psychology and structural linguistics, reading is define as a process of making sense out of a written text by decoding the smallest units and moves forward to larger units and finally ends with the text as a whole. According to Ommagio (1986), reading is primarily concerned with the recognition of individual letters, phonemes and words. This knowledge then leads to the recognition of individual words of the text presented to readers. Meaning of the whole

text is a process of building understanding of individual letters to the word level, then to the sentential level, and finally the text level. Carrell (1988) believes that the bottom-up processing is decoding individual linguistic units and building textual meaning from the smallest units to the largest. Proponents of school of thought argue that meaning is in the text, and that successful comprehension relies on the reader's ability to make sense of linguistic information in the text being read. Since meaning is in the text, successful comprehension depends on reader's language competence. Such kind of reading is called bottom-up processing. Briefly, the more competence the reader in the language, the easier the text is comprehended.

The second definition is proposed by proponents of cognitive psychology and transformational linguistics. Reading, according to proponents of this school of thought, is considered as an active process within which the reader makes sense out of a written text based on his or her previous-related background knowledge. This kind of reading is more popularly known as top-down processing. Meaning, according to this school of thought, is in the reader, not in the text. Ommagio (1986) explains that the top-down model, on the other hand, places the emphasis on the reader's active participation in the reconstruction of the meaning in the text. It looks at the reader's knowledge base and his/her ability to make predictions using this base.

Smith (1982) states that the top-down model of reading focuses on what the readers bring to the process. The readers sample the text for information and contrast it with their world knowledge, helping to make sense of what is written. In similar vein, Carrell (2002) states that top-down processing is the making of predictions about the text based on prior experience or background knowledge, and then checking the text for confirmation of predictions. Moreover, Dechant (1991) emphasizes that top-down reading is a processing of a text that begins in the mind of the readers with meaning-driven processes, or an assumption about the meaning of a text. The description so far indicates that successful comprehension relies on how much related-background knowledge possessed by the reader.

Lots of research findings indicate that basically reading involves an active interaction between the text and the reader. Anderson (1999:1), for example, explains, “Synergy occurs in reading, which combines the words on the printed page with the reader's background knowledge and experiences. In similar vein, Stanovich (1980) more specifically defines reading as an interactive compensatory process. 'Interactive' in that the reader makes sense of what they read by (1) decoding linguistic items on the page, and (2) relating this information to what they already know about the world. It is compensatory in the sense that if their linguistic knowledge is weak at any point, they will compensate by drawing on their related-background knowledge or vise versa. He, in other words, indicates that text comprehension depends primarily on (1) readers' language competence and the related background knowledge they have, and (2) breakdown in language competence will be compensated by background knowledge, and vise verse. This, in other words, means that in the process of making sense out of the printed text, the readers rely on both their knowledge of the language and their related background knowledge. The mode of reading is the combination of bottom-up and top-down processing.

Content Schemata and Reading Comprehension

It has been previously stated that background knowledge plays a crucial role in comprehension, because successful comprehension relies on whether or not the readers have the background related to the content of the text being read. The facilitative role of background knowledge in reading comprehension is primarily based on the opinion that no text, spoken or written, by itself carries meaning; rather, it only provides directions for listeners or readers as to how they should retrieve or reconstruct the intended meaning from their own previous acquired knowledge (Hadley, 2003:134). Thus, meaning is in the reader, not in the text; therefore, the more familiar the text content, the easier it is to comprehend.

Studies dealing with content schemata reveal that topic familiarity has been conducted by a number of researchers. Bensoussan (1998) examined the effects of faulty schemata on reading comprehension. The findings showed that use of wrong schemata or prior knowledge was a significant factor influencing text scores. Similarly, Salmani-Nodoushan (2003) investigated the effects of text familiarity, task type, and language proficiency on university student's test and task performances. The results showed that their overall test performances were found to be significantly influenced by text familiarity, language proficiency and the interaction between text familiarity and language proficiency. As with Bensoussan (1998) and Salmani-Nodoushan (2003), Pulido (2004) also examined the effects of topic familiarity on passage comprehension and intake, gain and retention of new lexical items from the passages. Overall, readers appeared to have a higher level of comprehension when the content was familiar to them.

Related Studies

The role of background knowledge has been subject of a considerable body of research over the past few years. Some of them arrive at the conclusion that background knowledge, particularly content schemata, facilitates comprehension, and support opinion that the more familiar the content of a given text, the easier, it is comprehended; conversely, breakdown or failure in comprehension of a text is mainly due inability to the familiar text content leads to comprehension breakdown or failures. In general, research findings indicate that content schemata in general do facilitate comprehension of both oral and written texts.

Mohammad & Assiri (2011), for example, investigated Saudi university English language majors' inability to translate cultural bound expressions. English cultural bound expressions are used to describe those expressions which are connected with western culture and they don't have equivalent in Saudi culture, such as 'girl-friend’. The study sample involves (253) English majors from the University of Tabuk and Taif University - Saudi Arabia. A culture-based translation test (CBTT) was developed to serve the purpose of this paper. The results of the study revealed that Saudi university English majors' performance in translating cultural bound English expressions is very poor as reflected by their scores on the culture-based translation test (CBTT).

As with Mohammad & Assiri, (2011), Yousef et al., (2014) attempted to investigate the relationship between cultural background of Iranian EFL learners and reading comprehension. 45

Iranian language learners majoring in TEFL and English language translation from three different ethnicities in different provinces were selected through purposive sampling. All participants received three different reading comprehension sub-tests: a reading sub-test including culturally familiar topics and two reading sub-tests with culturally unfamiliar topics. The results showed that the means of all groups on culturally familiar reading tests were greater than their means on reading tests with unfamiliar contents.

Maghsoud (2012) conducted similar a study investigating whether schema activation has any effect on reading comprehension of culturally-loaded texts. The subjects were 76 sophomore students divided into control and experimental groups. The students' schema in experimental group was activated through pre-reading activities while the participants in control group received no treatment. The results of the t-test showed a significant difference between the mean scores of pre-test and post-test of the experimental group before and after schema activation. Correlation analysis also revealed that as participants received more background knowledge, their comprehension of cultural texts was improved.

Tabatabaei (2013) investigated the effects of familiar and unfamiliar content on Iranian intermediate EFL learners' performance on Multiple-choice (MC) cloze test and C-test. Also, it has intended to compare the effects of gender on the learners performance on MC cloze test with familiar and unfamiliar content as well as its effects on their performance on C-test with familiar and unfamiliar content. During the testing period, 107 examinees took an Oxford quick placement test and a homogeneous sample including 30 males and 30 females was selected. They were from Islamic Azad University Najafabad Branch ranged in age from 20 to 35. The first session of the research process was dedicated to MC cloze test with familiar and unfamiliar content and a week later, the second session to C-test with familiar and unfamiliar content. The results showed that the participants had more successful performance on two tests with familiar content. Moreover, the results indicated that gender had no significant effect on the participants' performance on two tests.

Ganjabi (2014) investigated first whether a culturally familiar content had any facilitating effect on the readers' comprehension, and second whether the participants receiving either culturally familiar or unfamiliar content differed in terms of their cognitive and metacognitive strategy deployment. To these ends, 73 participants, being divided into control and experimental groups, provided the necessary data. Each group was given either a culturally familiar or unfamiliar story and subsequently received reading comprehension tests followed by a cognitive-metacognitive questionnaire. Data analysis revealed that first, the culturally familiar content had some facilitating effects on the participants' reading comprehension; and second, the participants who received the culturally familiar story employed lower degrees of cognitive and metacognitive strategies.

Hamed (2000) attempted to investigate the effect of using ESP texts based on secretarial content on the general English reading comprehension of the first year female secretarial students at the college level. Basically, the study aimed at answering two questions: 1. Is there any statistically significant difference at the level (a= 0.05) between the mean scores of the experimental group who read ESP texts and the control group who read GE texts on

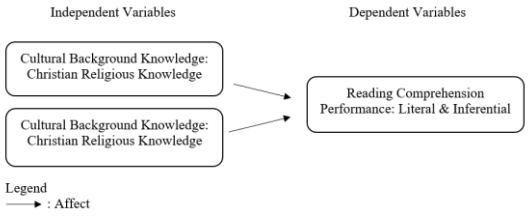
the general English reading comprehension test? 2. Is there any statistically significant difference at the level (a= 0.05) between the mean scores of the experimental and the control group on each individual component of reading comprehension? The population of the study (n=258) consisted of all first year female collegians majoring in Management and Office Automation in the academic year 1999/2000. The sample of the study consisted of two sections, 42 students, at Ramallah Women's Training Center (Al-Tireh College). Three ESP units and a general English reading comprehension test were produced by the researcher. The test was used as a pre-test and post-test. The results of the test were then computed and analysed using a series of t-tests. The findings were as follows: (1) There was a statistically significant difference between the mean scores of the experimental group and the control group on the general English reading comprehension test for the benefit of the experimental group. (2) There was a statistically significant difference between the mean scores of the experimental group and the control group on each of the four tested components of reading comprehension for the benefit of the experimental group. (3) All the students in the experimental group scored over twenty (the passing score) expect one whereas only seven students in the control group scored over that passing score. (4) The students in the experimental group achieved the highest adequacy level on the lexical component. (5) Both groups achieved the lowest adequacy level on the grammatical component. (6) Both groups had the same achievement order on two components, the discoursal knowledge and grammatical knowledge.

The above mentioned studies are similar to the present study. In terms or purpose, they all deals with the effects of content schemata on comprehension. In terms of type of research they are all experimental in nature using similar experimental design, posttest-only control group design. Although using different population and sample, this study is the replication of the above-mentioned studies.

Research Methodology

This study aims at describing a cause-effect relationship between independent and dependent variables. The independent variable in this study is religious background knowledge, particularly Christian and Moslem, while the dependent variable is reading comprehension performance, particularly literal and inferential comprehension. The independent variable is the variable intentionally selected in order to see its effect; the dependent is the one that is observed in order to know the effect of the dependent. Relationships between the existing variables in this present study are visually presented in Figure 1.

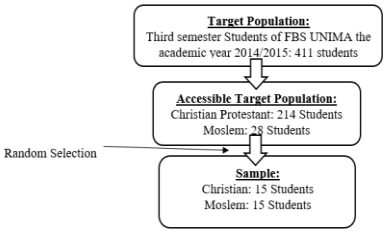
Figure 1. Cause-Effect Relationship between Variables



In terms of subject of the study, this study involved only third semester Students at English Education Department of Manado State University in the academic year 2014/2015. The writer

elaborated the religious sections of students into two sites which is consist of *Christian Students* (students who are either Protestant and Catholic denominations) and *Islam Students* (students who belong to sunny denomination). They were 411 students in all consisting of Protestant denomination: 214, Moslem: 28, Catholic: 56, Pentacostal: 99, and Hindu/Budha: 14. The sample was derived from existing population. The minimal sample for experimental research is 30 subjects per group. Since the Christian and Moslem students were the target of the present study, sample was selected randomly form these two groups. The Christian Protestant group consisted of 215 students and the Moslem 28. Of these population, 15 students were randomly selected as the sample for each group. Sample from the existing populations was derived following the procedure depicted in figure 2.

Figure 2. Random Sampling Procedure



Since this present study is experimental in nature, the experimental research design should be used. The design used is the one called post-test only controlled group design. The design is selected because it is an experimental research design which is good in controlling extraneous variables which can possibly affect the experimental treatments. In this case, different content background knowledge is considered as the experimental treatment. Experimental treatment is defined as any condition intentionally selected for observation of its effect on the dependent variable (see Dane, 1988). In this study, the sampling students underwent two experimental treatments. In the first experimental treatment, the Christian freshmen were exposed to both Christian text, and Moslem to Moslem text; in the second experimental treatment, the Christians to Moslem text, and the Moslem to Christian text. Therefore, the design used is called repeated measurement with counterbalancing design, as displayed in Table 1.

Table 1. Repeated Measurement & Counterbalancing Design

Treatment Group	Experimental Treatment 1	Experimental Treatment 2
Christian Group	Christian Text ➡ Observation	Moslem Text ➡ Observation
Moslem Group	Moslem Text ➡ Observation	Christian Text ➡ Observation

Experimental research basically consists of two important activities: manipulation and control. In the present study manipulation was done by me researcher by adding two different types of graphs to the same text and post-tested to see the effect of the two graphs on the subjects' text comprehension. Control, on the other hand, refers to measures taken by the researcher to minimize the effects of extraneous variables (threats) which possibly affect the internal validity of finding. In such an experiment, as the present one, there are 8 extraneous variables or threats to internal validity of the finding (see Gay, 1981 & Latif, 2014). They are history, maturation, testing, instrumentation, regression, selection, mortality, and selection interaction.

The present study was conducted in only one meeting which lasted for 60 minutes. History effect which refers to the occurrence of any event that is not part of the experimental treatment but which may affect performance on the dependent variable (Gay, 1981) was automatically controlled because the present study was conducted in one meeting only, and it was impossible for the subjects to obtain information from other sources when

answering the post-test; maturation or physical or mental changes that may occur within the subjects over a period of time (Gay, 1981), was controlled by having the lecturer who they were familiar with administered the post-test. In this way, the subjects were expected to do the test in as relax atmosphere as possible. Testing effect was automatically controlled because in the present study, the design used was post-test only controlled group design in which there is no pretesting.

Concerning instrumentation effect or unreliability, or lack of consistency, in measuring instruments which may result in invalid assessment of performance (Gay, 1981), it should be pointed out that the test used to assess the subjects' comprehension was validated using expert judgment technique, tried out, and revised before it was used to collect the data. This measure was particularly taken to minimize instrumentation effect. Furthermore, in relation to statistical regression, it should pointed out that the two classes involved in the experiment were selected based on the average mean score of their English which were approximately the same. Thus, there were no subjects in the two classes who had extreme scores. In addition to the above mentioned extraneous variables or threats to the internal validity, selection was controlled through random selection Concerning selection-maturation Interaction which means that if already formed groups are used, one group may profit more (or less) from a treatment or have an initial advantage (or disadvantage) because of maturation, history or testing factors (Gay, 1981), it can be stated that this effect is minimal because maturation and history had already been controlled, and the testing factor was not relevant because there was no pretesting.

The data in this study were in the form of test scores representing the third semester students' literal and inferential reading comprehension performances were statistically analysed. Since this study was a true experimental research, the data were analysed statistically using t-test.

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\left(\sum x_1^2 - \frac{\left(\sum x_1\right)^2}{n_1}\right) + \left[\sum y_2^2 - \frac{(\sum y_2)^2}{n_2}\right]}{n_1 + n_2 - 2}\left[\frac{n_1 + n_2}{n_1 . n_2}\right]}$$

(Moore, 1983:283)

Ideally, this statistical technique is used if the assumptions of normality, homogeneity of variance, etc are met. In parametric statistics, normality refers to data which are normality distributed along the normal curve, whereas homogeneity refers to data which show an equal (homogeneous) variance or spread within the two groups (Tuckman, 1999:286). In this study, these assumptions were ignored due to the fact that the number of sample in the two groups were equal and that the minimal sample size was thirty per group. According to Hays (1973 cited in Moore, 1983:281), assumption of normality do not greatly affect the results with sample size of 30 or more. Violations of the assumption of homogeneity of variances also have little effect on the t-test value when sample sizes are equal.

Result

The data regarding the effect of content schemata on students' comprehension is presented in Table 2.

Table 2. Experimental Treatment Data: Literal & Inferential Comprehension

No	Literal Comprehension Data		Inferential Comprehension Data	
	Familiar texts (X_1)	Unfamiliar texts (Y_1)	Familiar texts (X_2)	Unfamiliar texts (Y_2)
1.	7	7	8	7
2.	7	7	6	7
3.	7	6	6	6
4.	8	5	7	7
5.	6	6	7	4
6.	7	7	8	7
7.	9	8	8	5
8.	8	6	7	7
9.	8	7	7	6
10.	7	5	7	7
11.	7	7	6	7
12.	8	7	7	7
13.	7	6	7	6
14.	9	8	8	8
15.	9	6	7	7
16.	8	7	8	7
17.	7	6	7	6
18.	8	7	9	7
19.	7	6	7	7
20.	7	7	7	8
21.	8	6	7	6
22.	6	7	6	7
23.	7	6	8	6
24.	9	8	7	6
25.	6	7	8	7
26.	8	7	7	7
27.	8	8	7	7
28.	7	7	8	6
29.	8	7	7	6
30.	8	6	6	7

Based on the data presented in Table 2, the statistical analysis was carried out to be analysed using t-test for independent sample. To do this, it is necessary to firstly compute the sums of X, X^2, mean X, and Y, Y^2, mean Y.

Table 3. The sums of X_1, X_1^2, mean X_1, and Y_1, Y_1^2, mean Y_1

No	Literal Comprehension			
	Familiar texts (X_1)	X_1^2	Familiar texts (X_2)	Y_1^2
1.	7	49	8	49
2.	7	49	6	49
3.	7	49	6	36
4.	8	64	7	25
5.	6	36	7	36
6.	7	49	8	49
7.	9	91	8	64
8.	8	64	7	36
9.	8	64	7	49
10.	7	49	7	25
11.	7	49	6	49
12.	8	64	7	49
13.	7	49	7	36
14.	9	81	8	64
15.	9	81	7	36
16.	8	64	8	49
17.	7	49	7	36
18.	8	64	9	49
19.	7	49	7	36
20.	7	49	7	49
21.	8	64	7	36
22.	6	36	6	49
23.	7	49	8	36
24.	9	91	7	64
25.	6	36	8	49
26.	8	64	7	49
27.	8	64	7	64
28.	7	49	8	49
29.	8	64	7	49
30.	8	64	6	36
N=30	$\Sigma X_1 = 226$	$\Sigma X_1^2 = 1744$	$\Sigma Y_1 = 200$	$\Sigma Y_1^2 = 1352$

The mean scores in treatments were computed using this formula:

$$\bar{X} = \frac{\Sigma X}{N}$$

thus,

$$\bar{X}_1 = \frac{226}{30} = 7.5$$

$$Y_1 = \frac{200}{30} = 6.7$$

The summary of the sums of the sums of X_1, Y_1, X_1^2, Y_1^2, and mean X_1, and Y_1, is presented in Table 4.

Table 4. the sums of X_1, Y_1, X_1^2, Y_1^2, & mean X_1 & Y_1

Literal Comprehension			
Comprehension of familiar text		Comprehension of unfamiliar text	
ΣX_1	226	ΣY_1	200
ΣX_1^2	1744	ΣY_1^2	1352
N_1	30	N_1	30
Mean X_1	7.5	Mean Y_1	6.7

Based on the results of the computation of the sums of sums of X_1, Y_1, X_1^2, Y_1^2, and mean X_1, and Y_1, the first t-test was calculated in order to know whether or not the first null hypotheses is accepted. The calculation was as follows:

$$t = \frac{7.5-6.7}{\sqrt{\left(1744-\frac{51076}{30}\right)+\left[1352-\frac{40000}{30}\right]}{30+30-2}\left[\frac{30+30}{30\ x\ 30}\right]}$$

$$= \frac{0.8}{\frac{\sqrt{(1744-1702.5)+[1352-1333.3]}}{58}\left[\frac{60}{900}\right]}$$

$$= \frac{\frac{0.8}{\sqrt{60.2}}}{58}.0.6$$

$$= \frac{0.8}{\sqrt{1.04\ .0.06}}$$

$$= \frac{0.8}{\sqrt{0.6}}$$

$$= \frac{0.8}{0.25} = 3.200$$

Thus the $t_{(observed)}$ is 3.200, and with *df* 58 at *p* (or α) level 0.05, the $t_{(critical)}$ is 2.000.

To answer the first research question, whether or not the third semester students' content schemata significantly affect their literal comprehension of religious related text, and to find out whether the second hypotheses, The third semester students' content schemata do not significantly affect their inferential comprehension of religious-related texts, another *t-test* was computed. As with the first computation of *t-test*, it was necessary to compute the sums of X_2, Y_2, X_2^2, Y_2^2, and mean X_2 and Y_2, and the results are presented in Table 5.

Table 5. The sums of X_2, X_2^2, mean X_2, and Y_2, Y_2^2, mean Y_2

No	Inferential Comprehension			
	Familiar texts (X_2)	X_2^2	Familiar texts (Y_2)	Y_2^2
1.	8	64	7	49
2.	6	36	7	49
3.	6	36	6	36
4.	7	49	7	49
5.	7	49	4	16
6.	8	64	7	49
7.	8	64	5	25
8.	7	49	7	49
9.	7	49	6	36
10.	7	49	7	49
11.	6	36	7	49
12.	7	49	7	49
13.	7	49	6	36
14.	8	64	8	64
15.	7	49	7	49
16.	8	64	7	49
17.	7	49	6	36
18.	9	81	7	49
19.	7	49	7	49
20.	7	49	8	64
21.	7	49	6	36
22.	6	36	7	49
23.	8	64	6	36
24.	7	49	6	36
25.	8	64	7	49
26.	7	49	7	49
27.	7	49	7	49
28.	8	64	6	36
29.	7	49	6	36
30.	6	36	7	49
N_2=30	$\Sigma X_2 = 215$	$\Sigma X_2^2 = 1557$	$\Sigma Y_2 = 198$	$\Sigma Y_2^2 = 1326$

The mean score in treatments were computed afterward

$$\bar{X}_2 = \frac{215}{30} = 7.2$$

$$Y_2 = \frac{198}{30} = 6.6$$

The summary of the sums of X_2, Y_2, X_2^2, Y_2^2, and mean X_2 and Y_2 is presented in Table 6.

Table 6. the sums of X_2, Y_2, X_2^2, Y_2^2, & mean X_2 & Y_2

Literal Comprehension			
Comprehension of familiar text		Comprehension of unfamiliar text	
ΣX_2	215	ΣY_2	198
ΣX_2^2	1557	ΣY_2^2	1326
N_2	30	N_2	30
Mean X_2	7.2	Mean Y_2	6.6

The second *t-test* was calculated in order to know whether the second null hypothesis is accepted. The calculation was based on the results of the computations of the sums of X_2, Y_2, X_2^2, Y_2^2, and mean X_2 and Y_2.

$$t = \frac{7.2-6.6}{\frac{\sqrt{\left(1557-\frac{46225}{30}\right)+\left[1326-\frac{39204}{30}\right]}}{30+30-2}\left[\frac{30+30}{30\ x\ 30}\right]}$$

$$= \frac{0.6}{\frac{\sqrt{(1557-1540.8)+[1326-1306.8]}}{58}\left[\frac{60}{900}\right]}$$

$$= \frac{\frac{0.6}{\sqrt{35.4}}}{58}.0.6$$

$$= \frac{0.6}{\sqrt{0.61\ .\ 0.06}}$$

$$= \frac{0.6}{0.04}$$

$$= \frac{0.6}{0.25} = 2.400$$

Thus, the $t_{(observed)}$ is 2.400, and with *df* 58 at *p* (or α) 0.05, the $t_{(critical)}$ is 2.000.

To determine whether or not the null hypotheses were accepted or rejected, the interpretation is based on the criterion depicted in Table 7 below

Table 7. Criteria for Accepting/Rejecting H_0

Criteria	***p* or α level**	Meaning
$t_{(observed)}$ value $\leq$ $t_{(critical)}$ value	0.05	Accept H_0
$t_{(observed)}$ value $\geq$ $t_{(critical)}$ value	0.05	Reject H_0

(see Moore, 1983:64)

Referring back to the criteria mentioned in Table 5, it can be said that concerning the first research question, with *df* 58 at *p* 0.05, the $t_{(observed)}$ value (3.200) is larger than $t_{(critical)}$ value (2.000) at *p* 0.05 meaning that the null hypothesis, *The third semester students' content schemata do not significantly affect their literal comprehension of religious-related texts,* is rejected. This, in turn, means that the alternative hypothesis is accepted. Thus, the students' content schemata significantly affect their literal comprehension of religious-related texts.

Concerning the second research question, with *df* 58 at *p* 0.05, the $t_{(observed)}$ 2.400 is again larger than $t_{(critical)}$, 2.000 meaning that the null hypothesis, *The third semester students' content schemata do not significantly affect their inferential comprehension of religious-related texts, is rejected.* In other words, the alternative hypothesis, *the third semester students' content schemata do not significantly affect their inferential comprehension of religious-related texts,* is accepted. This again indicates that the subjects' content schemata significantly affect their inferential comprehension of religious-related texts.

Discussion

The data analysis on the effect of cultural schemata on literal comprehension indicates that the $t_{(obtained)}$ value is 3.200, and with df 58, at p or a level == 0.05, the $t_{(critical)}$ *value* is 2.000. Referring to the criteria mentioned in Table 4, it can be said that the $t_{(observed)}$ *value* is larger than that of the t/critical value which means that the *null hypotheses, The third semester students' content schemata do not significantly affect their literal comprehension of religious-related texts,* is rejected *at df = 58* and *p* or α *level = 0.05*. This, in other words, means that the alternative hypotheses, The *third semester students' content schemata significantly affect their literal comprehension of religious-related texts,* is accepted. Thus, it is true that content schemata significantly affect literal comprehension of religious texts.

Concerning the effect of content schemata on inferential comprehension, it can be stated that the $t_{(observed)}$ *value* (2.400) is larger than the $t_{(critical)}$ *value* (2.000) at *df* 58 and *p* (or α) *level 0.05*. Referring to the criteria mentioned in Table ....,, it can be said that the $t_{(observed)}$ *value* is larger than that of the $t_{(critical)}$ *value* which means that the null hypotheses, *The third semester students' content schemata do not significantly affect their inferential comprehension of religious-related texts,* is rejected at *df* = 58 and *p* or α *level* = 0.05. This, in other words, means that the alternative hypotheses, *The third semester students' content schemata significantly affect their inferential comprehension of religious-related texts, is accepted.* Thus, it is true that content schemata significantly affect inferential comprehension of religious texts. These findings lead to the conclusion that the more content schemata one has on his/her religion, the easier he/she is in comprehending religious text.

The findings of the present study go in line with the previous related studies mentioned in Mohammad & Assiri (2011), for example, revealed that Saudi university English majors' performance in translating cultural bound English expressions is very poor as reflected by their scores on the culture-based translation test (CBTT). Similarly, Yousef et al., (2014) showed that the means of all groups on culturally familiar reading tests were greater than their means on reading tests with unfamiliar contents. As with Mohammad

& Assiri (2011) and Yousef et al., (2014), Maghsoud (2012), Sabatin (2013), Alptekin (2006), Sasaki (1991), Tabatabaei (2013), Aghajani et al., (2009-2013), Ganjabi's finding (2014) and Chang (2006) revealed content familiarity facilitated reading comprehension.

The findings of the present study and all the related ones come to support the general consensus over the crucial role that content schemata plays in L2 reading comprehension. The comprehension of a text is significantly affected by the reader's relevant background knowledge of the content area of the text. Content schemata refer to the background knowledge of the content area of a text, or the topic a text talks about. They include topic familiarity, cultural knowledge and previous experience with a field. On the whole, the familiarity of the topic has a direct influence on readers' comprehension. The more the reader knows about the topic, the more easily
and quickly he gets the information of the text. Therefore, if one wants to be an efficient reader, he needs to try to know the knowledge about more fields and topics. Learners with more prior knowledge can better comprehend and remember more the text.

Content, as described above, is the key to the understanding of texts. Consequently, in order to help students easily and quickly comprehend written texts in English, it is necessary for English teachers to familiarize their students with reading strategies which help the students activate their related or relevant background knowledge. Using pre-reading activities of various kinds such as pre questioning, key word, discussion of the title, or non-verbal language such as static and dynamic pictures can be very helpful to activate the students' background knowledge. This, in turn, not helps the students to become independent readers, but also makes them love reading.

The present study together the previous ones have revealed that content familiarity facilitates comprehension. However, it is important for other researchers to conduct similar study involving population from other ethnic /cultural groups so that the effect of content schemata, particularly cultural schemata on reading comprehension can be verified. In this way, more accurate information about the effect of content schemata can be obtained.

Conclusion

In the present study, there are two research questions are put forward. Concerning the first research question, *Do the third semester students' content schemata significantly affect their literal comprehension of religious-related texts?*, the data analysis indicates that with *df* 58 at *p* 0.05, the $t_{(observed)}$ value (3.200) is larger than that of the $t_{(critical)}$ value (2.000) which means that the null hypotheses, *The third semester students' content schemata do not significantly affect their literal comprehension of religious-related texts*, is rejected. It can then be concluded that the third semester students' content schemata significantly affect their literal comprehension of religious-related texts. Concerning the second research question, *Do the third semester students' content schemata significantly affect their inferential comprehension of religious related texts?*, the data analysis indicates that with *df* 58 at *p* 0.05, the $t_{(observed)}$ value (2.400) is larger than that of the $t_{(critical)}$ value (2.000) which means that the null hypotheses, *The third semester students' content schemata do not significantly affect their literal comprehension of religious-*

related texts, is rejected. It can then be concluded that the third semester students' content schemata significantly affect their inferential comprehension of religious-related texts. Briefly, content schemata do affect literal and inferential comprehension of religious related texts.

The present study arrives at the general conclusion that content schemata do affect literal and inferential comprehension of religious related texts. The conclusion leads the researcher to put forward these suggestions: First, readers who can easily retrieve the relevant background stored in their long-term memory usually find it easy to comprehend the text being read. Conversely, those who fail to retrieve the relevant background knowledge find it difficult to comprehend the text being read. Retrieval is sometimes difficult because the texts read provides no cues which can help the readers retrieve the required information. Therefore, it is necessary for English teachers to apply appropriate reading strategies when teaching reading. In this way, comprehension is easier for them. Second, although studies on the effects of content schemata (including cultural schemata) have been done by lots of researchers, more information from other population concerning the effect of content schemata is needed in order to verify the previous research findings. In this way, more accurate or valid information concerning the effect of content schemata can be obtained.

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