Of a Village Bomoh and the Lottery: Content Schemata Influence on Second Language Reading

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Abstract

This paper discusses a study on the aspects of content schemata in second language reading, focusing on two contemporary short stories, i.e. 'A Quid of Sirih, A Bowl of Water' and 'The Lottery'. The study explores the cognitive processes of one UiTM Perlis degree level student, reflecting on his L2 reading processes. The objective of the study was to explore the role of content schemata in relation to learners' comprehension by looking at how the learner processed content-familiar and unfamiliar texts. One of the data collection techniques used was think aloud protocol. The analysis of the transcriptions was guided by the list of mental actions by Brown (1980). Two in-depth interview sessions were conducted to triangulate the data collected. The interview transcripts were analyzed for recurring patterns and then classified into categories. The findings imply that content schemata contributes to learners' understanding of a text as content schemata facilitates comprehension.

Keywords: schemata; content schemata

1. Introduction

Content schemata or background knowledge plays important roles in influencing learners' reading comprehension. Nunan (1985) explains that reading is a process which is dynamic where there is an interaction between the elements in the text with the reader's background knowledge. For the reader to understand a text efficiently, he or she needs to be able to connect the reading text to his or her background knowledge and exclusively relying on one's linguistic knowledge is insufficient (Carell and Eisterhold, 1988; Nunan, 1985). Background knowledge which readers access during reading is known as schema or schemata. Second language learners need to utilize their schema when they connect their background knowledge to the content of a text. A reader will comprehend a topic better if he or she possesses a rich schema on a particular topic (Alvarez & Risko, 1989). A second language learner who lacks schemata with regard to the context of the text would have difficulty in understanding the reading text as linguistic elements alone will not be sufficient for the learner to be an independent reader (Nunan, 1985). As such, insufficient schemata on the content area of the text will impede comprehension. To fully understand a reading passage, learners need to rely on their prior knowledge on the text's content area which also encompasses the knowledge on culture (Carrell, 1988).

2. Statement of the problem

More often than not, ESL learners, lacking in schemata, will encounter problems in understanding the content of a text that they are unfamiliar with. The scenario among Diploma level students in Universiti Teknologi MARA (UiTM) Perlis, lacks in content schemata which resulted in the failure to comprehend a reading text, had prompted the researcher to conduct a study on the role of content schemata in second language reading. From the researcher's experience teaching a group of Diploma Part 3 Civil Engineering students, she discovered that many of them were having difficulties to understand a text, for example, on asylum seekers in the United States of America. In order to complete the reading comprehension questions, the students were required to identify the writer's purpose or intention in identifying bias and connotations in the reading text. Lacking in schemata or "schema unavailability" (Nuttall, 1982; Carrell, 1988), in this case about the history of asylum seekers in America, was found to be a huge stumbling block for those students to comprehend the text. The students were unable to instantiate the appropriate slots from their schemata to relate to the context of asylum seekers in the reading text. It was presumed that since their background knowledge on asylum seekers were lacking, they could not activate their schemata which were essential to interpret the context of asylum seekers, where the slots should be instantiated with particular information (Anderson & Pearson, 1988). Therefore, the students faced problems in comprehending the text.

The reading texts selected for Diploma Level English Language servicing courses at UiTM campuses, cover wide-ranging issues such as asylum seekers. Matters regarding asylum seekers are being extensively covered by the local and foreign media, appearing in nightly news and local newspapers. They were presumed to be familiar to second language learners. Osman (1984) and Koh (1985) have highlighted the need of selecting texts that are within the known world or cultural knowledge of language learners (as cited in David & Norazit, 2000). However, reading texts used in English for Specific Purposes (ESP) courses at UiTM campuses require learners to have some amount of prior knowledge on the issues discussed in the texts. The learners lack the necessary schema or their schema is different from the writer's. Therefore, prior knowledge of the text content which involves culture, history and experience are prerequisites in understanding the text. Moreover, Johnson (1982) claims that cultural experience prepares the readers for comprehension.

During a reading process, the readers' schemata act as a bridge, connecting their prior knowledge on a particular subject matter to the content of the reading passage. Regarding Part 3 Diploma Civil Engineering students, they did not have sufficient background knowledge on the content area with regard to the history of asylum seekers in the United States and this 'schema unavailability' became a hindrance to a smooth understanding of the reading text. Carrell (1988) states that a reader will have to acquire prior knowledge on the text's content area in order to understand a reading text. Referring to the scenario above, it is crucial to conduct a study on the influence of content schemata on reading involving local tertiary level students.

3. Objective

This study explains the schema theory in relation to the influence of content schemata on reading comprehension. The study aimed at exploring how content schemata contributed to the learner's understanding of a text by looking at how the learner processes content-familiar and unfamiliar texts.

3.1 Research questions

This study explored the following research questions:

a) How does the language learner process content-familiar and content-unfamiliar texts?

b) What can be understood about the learner's reading experience on texts that require specific content schemata?

4. Significance of the study

This study is crucial as it looks at the aspects of content schemata that influence reading comprehension in second language reading with tertiary level students as the target group. This pilot study helped the researcher to practice conducting a think aloud protocol and interview sessions and also to familiarize herself with coding the interview data.

5. Definition of key terms

A. Schemata

"A data structure for representing the generic concepts stored in memory" (Rumelhart, 1980, p. 34).

B. Content schemata

"Content schema, which refers to a reader's background or world knowledge, provides readers with a foundation, a basis for comparison" (Carrell & Eisterhold, 1983, p. 73).

C. ESP

ESP is defined to meet specific needs of the learners, making use of underlying methodology and activities of the discipline it serves. ESP is centered on the language appropriate to these activities in terms of grammar, lexis, register, study skills, discourse and genre. (Dudley-Evans, 1998)

6. Literature review

6.1 The Origin of Schema Theory

Anderson and Pearson (1988) state that even though Bartlett is known as the earliest psychologist to apply schema term in a similar way that it is applied at present, the notion of schema was initially reflected in the insight of the Gestalt Psychologists in the study of mental organization. Piaget (1970) refers to the schema term as cognitive structure and mental model (as cited in Yuehai, 2008). Bartlett (1932) advocates that our memory functions like a schema which is responsible in providing a mental framework that enables us to understand and remember information. Anderson and Pearson (1988) believe that Ausubel (1963) also refers to the notion of schema theory, using the term schema as advance organizers, "a statement written in abstract, inclusive terms deliberately introduced before a text and intended to provide a conceptual bridge between what the reader already knows and the propositions in the text" (p. 41).

According to Landry (2002), schema theory originated from early computer models of knowledge. Schema theory was active in the 1970s and it has been used in social psychology. The specific details of an individual structure are not easy to be revealed. It is easy to understand reality when instances that are specific match the expectations. However, there is an unlimited amount of variation of the instances available in content. It was the intention of Schank and Abelson's (1977) study to improve computer processing so that computers can understand human language. The researchers' aim in their investigation was in producing Artificial Intelligence but in examining the knowledge structures, they had exposed the elements of human behavior that had not yet been discovered. The emergence of Artificial Intelligence had caused researches to become aware of the intrinsic vagueness in language.

The schema concept in relation to learning theory was further developed by Rumelhart (1980). Organized knowledge is viewed as an expanded network of abstract mental structures which signify one's knowledge of the world. Additions can be made to schemata and they are always structured meaningfully (Anderson, 1977). Knowledge embedded in schemata is not static as they are continuously changing. As an individual gains experience, he or she develops to add more variables to his or her schemata. Every schema is implanted in other schemata and each contains a subschema. Schemata may also be restructured when inward bound data shows a necessity that a particular concept has to be reconstructed. Schema is a knowledge structure that is abstract in nature which records objects' as well as events' regularities and must comprise all alternatives in a non rigid way (Anderson, 1995). Human memory will record similar characteristics from the instances that are repeated where one's schema is generated.

In addition, McCarthy (1991) explains schemata as the essential connections which enable new experiences and information to be associated with prior knowledge. Relationships that are coherent are important to understand a reading passage. Schemata include content, formal and abstract. Content refers to relationships obvious from a topic. Oller (1995) states that background knowledge are based on "abductive judgements about particular facts and states of affairs" (p. 286). Content schemata is defined as background knowledge of the content area of the reading passage that a reader associates with a particular text, whereas, formal schemata are remote associations based on one's understanding of generalizations or one's mindset (Carrell & Eisterhold, 1988; Carrell, 1988; Singhal, 1998; Stott, 2001). Abstract schemata, on the other hand, comprise concealed factors and considerations based on themes (McCarthy, 1991).

6.2 Studies on the Influence of Schemata on Reading Comprehension

Thor (2005) explains that when readers activate relevant schema to complement reading instruction, it allows them to embark on a reading task with experiences that they are already familiar with, which facilitates readers' acquisition, storage, and retrieval of meaningful information. Activation of background knowledge is necessary as a pre-reading activity during the process of reading. This can help learners to develop what they already know or have previously experienced which leads to text comprehension. Readers may have the background knowledge in oral form but the link between written and expressive language may not be established. Success or failure of comprehension of the text can be connected to the appropriate activation of schema before readers embark on the reading task. When readers lack prior knowledge or experience regarding a certain topic, the consequence is that readers are not able to understand what they have read.

Bartlett's (1932) study is considered as the classical research, studying the effect of schemata on reading comprehension. A text on an unfamiliar culture was given to the English participants and they were later asked to recall the story. Bartlett's study reveals that the participants were unable to recall the story accurately but instead it contained distortions, indicating the influence of their past experiences.

7. Methodology

7.1 Research Design

With regard to the research design, this study is a qualitative case study. The researcher adopted the case study design as the contextual condition, i.e. the availability of content schemata and schema unavailability are crucial to the phenomenon of this study. A case study is deemed appropriate because the researcher wanted to study the phenomenon in-depth and to closely study the participant involved. Dörnyei (2007) states, "two recent reviews of case studies, by Duff (in press) and van Lier (2005), provide convincing evidence that the case study approach has been productive and highly influential in applied linguistics" (p.154). In this study, the researcher sought to develop an in-depth understanding of how the learner coped with texts that require specific content schemata.

7.2 Participant

The participant for this pilot study is one Part 6, Universiti Teknologi MARA (Perlis) degree level student.

7.3 Data Collection

In order to explore the contribution of content schemata to learners' understanding of a text, think aloud protocol was carried out on the participant. Someren, Barnard and Sandberg (1994) state that the think aloud technique consists of asking learners to think aloud while solving a problem and analyzing the resulting verbal protocols. In this study, the verbal externalisation of thought from the participant was audio taped and transcribed verbatimly. The analysis of the verbal protocol transcriptions will be guided using the list of mental actions (Brown, 1980). The activities involved were identifying important aspects of a message; allocating attention so that concentration can be focused on the major content area and monitoring ongoing activities to find out whether comprehension is occurring.

As the participant was reading the two texts, the participant was asked to give verbal reports of his cognitive processes. This data collecting technique allowed the researcher to observe the participant's cognitive processes during the progress of the reading tasks. The researcher referred to the specific notations which is adapted from Cavalcanti (1989), as cited in Fujita, Nardi and Fagundes (2003) in order to comprehend the reader's cognitive processes during the progress of the reading tasks. The reality or meanings emerged from the verbal protocol transcriptions. For this particular study, the participant was asked to say out what he was thinking while performing the two reading tasks, i.e. reading two texts. In every session in which verbal protocol data would be collected, the researcher first explained the nature of think aloud protocol task so that the participant understood what he was required to do while reading both short stories, i.e. 'A Quid of Sirih and a Bowl of Water' and 'The Lottery'.

In order to triangulate the data to be collected, in-depth interviews, i.e. one-on-one interviewing was also conducted. The framework of schema theory which emphasizes the role of background knowledge as a primary support in reading comprehension served as a guideline in constructing the in-depth interview questions. The researcher designed and used an interview protocol with open-ended questions to explore the learner's reading experience on texts that require specific content schemata as well as a text with content area that is assumed to be very familiar to the participant. These open-ended questions probed the participant to give responses on how he coped with the texts that require specific content schemata. The in-depth interviews conducted were audio taped and transcribed verbatimly. The in-depth interviews were conducted immediately after each think aloud protocol session. They were done so that the participant's mental process of reading would be immediately accessible as it was still stored in his short-term memory. The in-depth interviews were conducted until data saturation was reached.

The reading texts chosen in this study were: i) a text which is regarded as content-familiar to the participant, written by a local author and ii) a text which is regarded as content-unfamiliar to the participant, written by a foreign author. The content-familiar text chosen in this study was a short story entitled 'A Quid of Sirih, a Bowl of Water' by a local author, Khadijah Hashim (1988). The original title was 'Sekapur Sirih Segeluk Air' which was translated into English by Maznah Mazlan and Salleh Bin Mohd. Joned (Tenggara 6, 1973). Whereas, the content-unfamiliar text chosen in this study was 'The Lottery' by an American author, Shirley Jackson (1948).

7.4 Readability of Texts

Two readability formulae chosen to check both texts readability are McAlpine EFLAW (McAlpine, as cited in McAlpine 2012) and the Fog Index (Gunning, as cited in Alderson & Urquhart, 1992).

The researcher had utilized the 'Text Readability Consensus Calculator' from http://www.readabilityformulas.com/free-readability-formula-tests.php to check the text readability for both texts. Text Readability Consensus Calculator calculates the number of sentences, words, syllables, and characters in the text. A sample size of 200 words is taken from both texts and the readability assessment tool calculated both texts readability. The formula chosen from the 'Text Readability Consensus Calculator' is the Fog Index Formula.

For the content-familiar text, i.e. 'A Quid of Sirih, A bowl of Water', the Fog Index Formula scored 5.4 for text scale. It falls under the catagory easy to read. For the content-unfamiliar text, i.e. 'The Lottery', The Fog Index Formula scored 5 for text scale. It also falls under the category easy to read. McAlpine EFLAW readability score is calculated manually for the content-familiar text as well as for the content-unfamiliar text. For 'A Quid of Sirih, A bowl of Water', the content-familiar text, McAlpine EFLAW scored 10.46 for text scale. It falls under the catagory very easy to understand. For the content-unfamiliar text, i.e. 'The Lottery', McAlpine EFLAW scored 10.85 for text scale, which also falls under very easy to understand category.

8. Findings

   A. Analysis of the Think Aloud Protocol Transcription for Content-Familiar Short Story (A Quid of Sirih, A Bowl of Water)

Table 1 below indicates the specific notations, adapted from Cavalcanti (1989), as cited in Fujita, Nardi and Fagundes (2003), used in transcribing the verbal protocols from the participant, Ben on both short stories.

Table 1. Specific Notations for Verbal Protocol Transcriptions

[…]	passage of the text verbalized by the subject at the first reading
Italic	subject's comments showing his comprehension
…	pauses and continuation of reading
< - -	subject returns to previous passages of the text
((SL))	subjects speaks and laughs at the same time
((MT))	subjects mutters (meaning irony)

It was observed that during the think aloud protocol session for the content-familiar text, Ben identified the major aspects of the text and focused his attention on the content area. He always looked for the connection between the characters and the subject matter in the short story. Below is a sample of the think aloud protocol transcription.

> So it's all about chicken…[…try to replace the chicken that he wants to eat…]...((SL))…There is no connection…chicken and the bomoh...why? …Where's the connection between the chicken and the pawang… another issue is coming up, the issue of money in the story…which shows no connection with pawang.

It was also observed that during the think aloud protocol session for the content-familiar text, the participant always monitored ongoing activities to find out whether he understood the story plot. The participant confirmed his understanding of the storyline while reading. Below is a sample of the think aloud protocol transcription.

…the father, believing in the conventional way of healing, being the village pawang and the son, the modern way of healing, medical practices.

The participant, i.e. Ben, also identified the confrontation between the main characters and the attitude of the son as a proud son, disrespecting the father due to their conflicting paths in life, i.e. the father being the village <u>bomoh</u>, whereas the son is a university student, studying medicine. Below is a sample of the think aloud protocol transcription.

> …Ok this is the confrontation…[…incantation]….[…traditional versus conventional way of treating people]…Ok… […he tries to humiliate his father but hope his father will realize the humiliation he gave]…OK…bad son…

B. Analysis of the In-depth Interview for Content-Familiar Short Story (A Quid of <u>Sirih</u>, A Bowl of Water)

The findings are discussed based on the semi-structured guideline questions. The researcher analyzed the interview response for themes, which indicated the role of content schemata that facilitates understanding. The points are illustrated in the sample quotes below.

Interview Question 1: How do you describe your reading experience on this text?

1) Theme: General understanding

The participant, i.e. Ben, generally understood the story, even though the beginning of the story seemed to be a bit confusing to him. The participant said,

> "The continuation of the story...the characters' focus, keep jumping from one to another...but the middle of the story is very interesting...and the continuity of the story...the flow of the story is well delivered."

Interview Question 2: How do you cope with the text that requires specific background knowledge?

2) Theme: Relies on background knowledge

The participant used his background knowledge to understand the text because it is a common practice of his family to become <u>pawang</u>. Ben said,

> "Yea…because my own family rooted from <u>pawang</u>...my ancestors were <u>pawang</u>...Starting from my father's generation, there's no <u>pawang</u> anymore…"

Interview Question 3: How do you relate <u>pawang</u> in the short story to your background knowledge? How do you relate that to your personal experience?

3) Theme: Using imagination

In relating the short story to Ben's personal experience, he imagined the scene of <u>pawang</u> rituals in his head. He said,

> "I imagine it as I've attended more than 10 or 20's such a ritual."

Interview Question 4: You seem to make a connection with your personal experience because you have met a <u>pawang</u> before. Am I right?

4) Theme: Relates with personal experience

The participant linked the short story with his personal experience. He said,

> "...I have experienced meeting a <u>pawang</u>…that has helped me to understand the short story..."

The participant also stated that those coming from the urban area, the idea of <u>pawang</u> might be new to them. He said,

> "If you ask someone in the urban area...it might be something new for them...but for me I've experienced this and it's very common for rural villagers that come out to the urban area to feel that the culture is not suitable for them anymore…"

Interview Question 5: In your opinion, is background knowledge important to understand

a text?

5) Theme: Acknowledges the importance of background knowledge

The participant thought that background knowledge is very important. He said,

"…for me it's very important for us to have background knowledge…without knowing anything that relates to the text…we can't understand it clearly…you need to read it two, three times before you can really see what it's all about...but with background knowledge…it's easier, better and smooth understanding."

C. Analysis of the Think Aloud Protocol for the Content-Unfamiliar Short Story (The Lottery)

The analysis of the verbal protocol transcriptions was done based on the list of activities in relation to the meta-cognitive character to mental actions (Brown, 1980). The activities involved were identifying important aspects of a text; allocating attention so that concentration can be focused on the major content area and monitoring ongoing activities to find out whether comprehension is occurring.

It was observed that during the think aloud protocol session for the content-unfamiliar text, the participant identified the major aspects of a text and focused his attention on the content area. The participant tried to find the connection between the characters and the subject matter in the short story. Below is a sample of the think aloud protocol transcription.

[People of the village began to gather]…[…Bobby Martin had already stuffed his pockets full of stones]… "hmm"…[…pile of stones…]

During the think aloud protocol session for the content-unfamiliar text, the participant always monitored ongoing activities to find out whether his comprehension was taking place. The participant could not confirm understanding of the storyline while reading. He also looked very confused as he kept flipping the pages. Below is a sample of the think aloud protocol transcription.

[…the lottery]…<-- ((MT - subject mutters))…[the box was put away]...[…the official of the lottery]…why?((MT - subject mutters)

D. Analysis of the In-depth Interview for the Content-Unfamiliar Short Story (The Lottery)

The findings are discussed based on the semi-structured guideline questions. The researcher analyzed the interview response for themes, which indicated the role of content schemata that facilitates understanding. The points are illustrated in the sample quotes below.

Interview Question 1: How do you describe your reading experience on this text?

1) Theme: Absent of general understanding

Ben could not understand the short story because he could not make any connection with his own background knowledge. He said,

"…the story is very hard to read…very confusing… because of the conflicting idea of what the lottery is and that has caused confusion to me and therefore I failed to understand the storyline."

Interview Question 2: How do you cope with the text that requires specific background

knowledge?

2) Theme: Absent of background knowledge

The participant had no background knowledge that he could rely on to aid his understanding. Ben said,

"…I have no experience whatsoever with the kind of lottery in the short story. I'm used to the normal kind of lottery where people receive prizes when their number is called and not to this kind of lottery where their names are called to be stoned to death…"

Interview Question 3: In the first short story, you mentioned that you made use of your

imagination. How about this short story?

3) Theme: Failed to use imagination

The participant was unable to use his imagination. He said,

"…I tried to use my imagination but I can't…The culture of this kind of lottery is very alien to me…"

Interview Question 4: Can you make a connection with the subject matter, i.e. the lottery, to your own life?

4)   Theme: Unable to make connections

The participant was not able to make any connection with the subject matter of the short story. He said,

"I have experienced meeting a pawang...that has helped me to understand the first short story...the second one, I've never seen such a lottery before and the kind of lottery that I had in mind is so different…I can't understand why they are doing that."

Interview Question 5: In your opinion, is background knowledge important to understand a text?

5)   Theme: Acknowledges the importance of background knowledge

The participant acknowledged that background knowledge is crucial as it aids understanding of the reading text. He said,

"Yes…background knowledge is very important as I really rely on what I already know and familiar with…without any knowledge, it's almost impossible to follow the story."

9. Discussion

The findings of the pilot study indicated that language learners without any prior knowledge or experience with a particular topic will be unable to comprehend what is being read. Background knowledge (content schemata) therefore is crucial as it plays a major role in learners' understanding of a text. In the pilot study, the participant attempted three activities in relation to the meta-cognitive character to mental actions (Brown, 1980), i.e. looking for connections between the characters and the subject matter in both short stories by identifying important aspects of a text, allocating attention so that concentration can be focused on the major content area and monitoring ongoing activities to find out whether comprehension is occurring.

The participant's schema on seeing a medicine man in the content-familiar text was activated. Therefore, he was able to make a quick prediction on the relationship between the characters as well as was able to make accurate inferences. Anderson, Reynolds, Schallert and Goetz's (1976) study as cited in Xie (2005) agrees that the experience of the reader influences which schemata to be chosen. Nuttall (1982) also states that an alert reader who actively processes the ideas in the reading passage, he or she is able to activate the relevant schemata. The participant also confirmed understanding of the storylines while reading by monitoring his ongoing activities to find out whether comprehension is occurring. The participant had stated that he relied on his background knowledge to understand the content-familiar text and had used his imagination to relate with his personal experience. Swales (as cited in Stott 2001) also emphasises that the reading passage will be relatively easy when the readers are familiar with the content and form. For the content-familiar text, the participant had experienced meeting with a medicine man in several occasions and his family background of generations of pawang have helped him to relate the content area of the short story to his own personal experience. Aebersold and Field's study (as cited in Stott 2001) further strengthens that readers generate information on the topic based on their own experience and knowledge. Goodman (1975) also states that readers who are proficient minimize dependence on text detail by using prior knowledge to form predictions and checking their predictions against the text.

For the content-unfamiliar text, there was the absent of background knowledge so the participant failed to use his imagination. The participant had no background knowledge that he could base on to aid his understanding. The participant failed to understand the concept of 'lottery' in the content-unfamiliar short story. The possible explanation for this is that some major concepts may be absent in the schemata of readers who are non-native or they may have different interpretations (Carrell & Eisterhold, 1988). The participant also mentioned in the interview that one of the reasons for him not being able to relate to the content-unfamiliar short story is due to the different interpretation on the meaning of the word 'lottery' as apposed to his own interpretation of lottery, where names are randomly selected and the ones whose names are called will receive prizes, and not to be stoned to death. Ismail and Razi (2009) also state that in the instance of cultural norms which are unfamiliar to the readers, they have the tendency to refer to their own cultural properties which can cause them to misinterpret the reading passage. There is also a possibility of L1 schema interference as Swaffar, Arens & Byrnes (1991) caution that L1 schema interference might impede learners' comprehension. Potential misreading might also occur as "the issue of misreading is often a cultural rather than a language problem" (p. 154). Burt and Dulay (1978) also stress that background information is a factor that must be considered as they emphasise the content of the text must not be outside the experience of the learners, nor inconsistent with their cultural customs and values. In summary, the participant acknowledged the importance of background knowledge as it plays a major role in the readers' understanding of a text.

10. Conclusion

This study aimed at exploring the contribution of content and background knowledge (content schemata) to reading comprehension. The think aloud protocol and the in-depth interviews had gained insights into the learner's cognitive processes that are involved in reading in the second language. This study explored the learner's reading experience on texts that require specific content schemata. Based on the analysis of the think aloud protocols and the interview responses, this study, therefore, implies that content schemata play a significant role in readers' comprehension of reading texts. Lacking in content schemata can impede reading comprehension.

10.1 Contributions of this paper

This study can add to the body of knowledge on the role of content schemata on reading comprehension. The content of this paper will help researchers interested in this area to have a better understanding of the concepts and framework of schema theory.

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