CONTENT SCHEMA, AN INDISPENSABLE PART OF L2 READING COMPREHENSION: A REVIEW

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ABSTRACT: This paper aims to explore and raise awareness of the significance of content schema as an essential component of language acquisition, principally illustrating its potent value in L2 reading comprehension. All good readers have enhanced schematic knowledge that helps them in comprehending not only texts, but lexis plus contextual information without difficulty. Activating students' schemata helps them to become metacognitive, however, the role and importance of schemata in language acquisition has fairly remained a derelict aspect with regards to second language learning and teaching; this study therefore seeks to highlight the same for facilitating a much needed understanding required to devise and put into practice an easily adaptable way of learning and instructing possibly in L2 reading. The study may possibly pave the way for further research in the area.

KEYWORDS: Schema, Linguistic, Culture, Reading Comprehension, Contexts, Content Schema

INTRODUCTION

Reading is a complex, dynamic, interactive process that encourages the readers to use their sub skills in order to decode and infer the variety of texts. It is the ability to draw the meaning from a text with appropriate interpretation of the information by the help of skills and strategies. Goodman (1988) describes reading as a receptive psycholinguistic process which starts with an apparent linguistic representation encoded by the writer and ends with the reader decoding the language by constructing the meaning to the thought. Reading as one of the fundamental constituents of the language learning process plays a vital role in second language acquisition. Bernhardt (1991) affirms that the ability to read is acknowledged to be the most stable and durable of the second language modalities (Bernhardt cited by Singhal, 1998) while research by Grabe (2002) shows that as a linguistic learning process, reading is always purposeful; reading to learn, reading for general comprehension, reading to integrate information, reading to write or reading just for enjoyment are all purposes that provide motivation to the readers. Reading in a foreign language proves to be a huge challenge for the language learners but as a requisite of the language learning process it must be attained.

Early work in the second language reading assumed that reading was a passive decoding process with a 'bottom-up' view in which the readers reconstruct the writer's meaning through recognizing letters and words while building up a meaning for a text from the smallest textual units (letters and words) and then moving into larger units like phrases, sentences and clause links etc. (Carrell, 1988a). The weight in this approach was on small elements of texts like letters and words rather than on the whole message of the text. However, in the 1970s the reading process developed into an active process with a 'top-down' view of second language reading. The readers became the active participants of the process who depended on their sentential and contextual knowledge, making predictions and processing information. The

significance of readers' prior knowledge or the background knowledge came into the limelight in this era. Furthermore, for clear and effective reading the researchers under the influence of the Schema Theory gave rise to the conception of an 'interactive approach'. Rumelhart(1977), Stanovich(1980), Kintsch and Van Dijk(1983) all advocated the approach that combined the bottom-up and top-down models of reading with much importance on using prior knowledge in order to operate interactively. Eskey(1988) emphasizes that "developing readers must therefore work at perfecting both their bottom-up recognition skills and their topdown interpretation strategies. Good reading - that is, fluent and accurate reading - can result only from a constant interaction in between these processes" (p.95). Reading in the L1 and L2 contexts differ greatly and the L2 readers have to encounter a number of complexities in the L2 reading comprehension such as the different kinds of texts and the ways of discourse or the varying L2 knowledge but, even though, the learners are faced with the challenge of dealing with two languages; they make use of their lexical and grammatical skills, the knowledge of the L1, the text schema and particularly the background knowledge so as to comprehend a written text. Schemas in reading, whether in the L1 or L2, facilitate the readers to construct a meaningful understanding of the written text. In language teaching, the schematic understanding or more significantly the content schema plays a crucial part in the reading process and the readers' comprehension is thought to incomplete without it.

This paper aims to highlight the critical role of the content schema in L2 reading comprehension while exploring the influence of the content-based schemas in the reading process. It reviews the literature and also elaborates on the implications that the content schema might bring to text for the second language readers.

REVIEW OF THE LITERATURE

An Overview of the Schema Theory

The role of background knowledge in language comprehension has been formalized as Schema Theory (Bartlett, 1932 cited by Carrell & Eisterhold, 1983). The Schema theory was proposed by Gestalt psychologist Bartlett (1932) who had conceived the notion by observing people when they were asked to repeat a story from their memories. He drew on the fact that these people narrated details that did not actually occur but were based on pre-existing knowledge or their past experiences. He then came up with the term "schema" to refer to "an active organization of past reactions or past experience." Bartlett used phrases like "mental set", "active organization", and "general impression" to describe how schemas actually work but his explanations were quite vague. However, it was in the late 1970s that the schema-theoretic notions gained significance with the works of Rumelhart 1980, Schank and Abelson 1977, R.C. Anderson and many more that schema theory became the driving force for theorists to base their investigations on for the processes of reading as well as listening (Anderson & Pearson, 1984). According to schema theory, a text itself does not possess a meaning; it is the interactive process of comprehension and efficient schematic mapping that enables the reader to relate the textual material to their pre-existing knowledge. The theory further elaborates that in order to guide this certain processes occur; the bottom-up process which involves the movement of data from the page to the brain and the top-down process which attempts to map this data onto an existing knowledge structure take place. However, this top-down information processing only works when the schema matches the incoming data. James (1987) asserts that if the data contradicts the reader's schema, the schema is either amended by the new information or the

information is rejected in favor of the existing schema. Hence, Schema Theory "is a theory of how knowledge is actually acquired by an individual and how it is processed by the mind with the help of the stored knowledge "(Nassaji, 2002).

The Definition of Schema

Schema (plural: schemas or schemata) refers to the pre-existing knowledge that readers bring to a text. Widdowson (1983) describes schemas as 'cognitive constructs which allow for the organization of information in long-term memory' (Widdowson cited by Wallace 1992, p.33). Schemas are socially acquired mental representation of experiences that are activated in people when they have to interpret new information. Anderson (1984) describes schema as an 'abstract knowledge structure' or the readers' existing concepts about the world that constitute a framework in which the readers must fit whatever they understand from the text. The first language comprehension is taken to be the interaction of new information with old knowledge while the text is ignored or revised if it does not make sense in terms of a reader's schemas (Anderson & Pearson, 1984). A schema is a mental representation of an instance, for example, the schematic representation of a restaurant evokes images of fine dining with meal being served or a visit to a doctor's office activates the schemas of a doctor, the patients in the waiting area and the anxiety over an illness. Carrell (1983) claims that we have all sorts of schemas stored away for activities, events and scenes like for restaurants (fast food or Chinese), for professional meetings or for rooms in our houses and even of the furniture for the decor of the rooms. Generally as universal knowledge some schemas are shared, like the ones mentioned above or even the schemas about nature such as rain, sunshine; the phenomena of life such as family, childhood and aging. A text similar to the one displayed in Appendix A is likely to trigger the appropriate schemas in the readers, consequently making the comprehension easy. However, our schemas are influenced by many elements. Wallace (1992) affirms that the cultural, sub cultural differences as well as the social experiences influence and shape our schemas. Schemas as dynamic structures shape perceptions. Rumelhart (1980) sees them as "being fluid and constantly capable of adapting to fresh information" (Rumelhart cited in Abersold & Field 1997, p. 2).

Types of Schema

The concept of background knowledge in addition to being known as schema is also referred to as a frame or script. Schemas play a very crucial role in the readers' interaction between the text and their background knowledge. The research shows that the lack of an appropriate schema might result in a failure of L1 or L2 readers to make sense of a text. Carell (1988b) surmises that, "students' apparent reading problems may be problems of insufficient background knowledge [content, formal and linguistic]" (p.245). She further postulates that the students might possess sufficient schemas but factor such as the influence of cultural knowledge or the inactivation of appropriate schema due to vocabulary difficulties may act as barriers in students' comprehension of the text. Carrell (1983, 1984 & 1987) in her studies on ESL reading comprehension asserts that there are differences in the effects of schemas on comprehension of native and non-native readers of English. She is of the view that native readers use a top-down processing mode while the non-native restore to the opposite. She accentuates that the L2 readers usually fail to use schematic knowledge because they are linguistically bound. The language itself requires so much attention that the non-native readers tend to process at the word and sentence level rather than focusing on top-down processing of the information (Carrell, 1983). Nonetheless, to achieve comprehension in reading; both kinds of processing must work simultaneously (Nassaji, 2002; Carrell, 1983). The researchers have <u>Published by European Centre for Research Training and Development UK (www.eajournals.org)</u> identified several schemas with three major types, namely, the content schema, the formal schema and the linguistic schema.

The Content Schema

Content schema which refers to a reader's world knowledge is an influential factor that affects reading comprehension particularly in second language readers. The content schema is used by the readers to understand the text by guessing or predicting the meaning while choosing information and to an extent this kind of schema aids comprehension by making up for the readers' lack of linguistic schema. Carrell (1983) describes content schema "as the background knowledge of the content area of the text that a readers bring to a text" (p.83). It is assumed that the L2 readers who possess or are given appropriate background knowledge about a text are more likely to understand and recall the contents of the text than those who have no or little background knowledge about the text. The role of content schema in L2 reading comprehension is indispensable and therefore it is being discussed in detail further on in this paper.

Formal Schema

Formal schemas are the rhetorical structure of the text (Carrell, 1983). The research on how readers' expectations about the rhetorical organization of the text affect their comprehension is dominated by Carrell's works. Formal schema is also known as textual schema that encompasses the background knowledge relating to the formal and rhetorical organizational structures of the different types of text. According to Singhal (1998), the formal schema includes knowledge of different text types and genres as well as the understanding that different text types use text organization, language structures, vocabulary, grammar and level of formality differently. The readers' schemas vary because of differences in texts' structural and organizational representation like newspapers or stories would activate a different set of schemas than poetry or a scientific article.

Linguistic Schema

The language or linguistic schema refers to one's knowledge of lexicon, syntax and semantics. Linguistic schema involves decoding features that are needed to recognize words and how they fit together in sentences. Readers in their L1, through repeated examples are able to generalize a pattern or guess the meaning of a word that was not initially a part of their linguistic schema. The building of linguistic schema in L2 can be shaped in the same way (Aebersold & Field, 1997).

The Significant Role of Content Schema in L2 Reading Comprehension:

Content Schema refers to the background knowledge or world knowledge about the content area of a text (Carrell & Eisterhold, 1983). The researches in L2 reading show that the content schemas have a profound effect on the comprehension and recall of the readers, more than that of the formal schemas. They act as the vital elements in comprehending and assimilating of the text information while providing the readers with a base for relating the new knowledge to their existing one. An empirical study carried out by Steffenson, Joag-dev and Anderson (1979) illustrates how important the content schemas can be in the L2 reading comprehension. In the study, two groups of people with different cultural foundations were investigated. One group was of Asian Indians living in USA and the other was Americans. These university students were given letters with the content based on traditional American and Indian weddings. Both

American and Indians have different customs, practices and rituals in weddings. The subjects in the study were found to be more accurate in recalling the text which was culturally familiar. They were able to read the text faster and comprehend the one relevant to their culture while facing difficulties in recalling the passages that were unfamiliar. The students were confused about the unfamiliar text so made inaccurate predictions and inserted their own ideas for the interpretation of the content. Hence, the study supported the hypothesis that the readers are able to comprehend the text relevant to their cultural frameworks more accurately than the texts that are culturally unfamiliar (Carrell, 1983). Andersson and Barnitz (1984) who view cultural schemas as a component of content schemas contend that the mismatch in cultural schemas in L1 and L2 reading comprehension often leads to wrong guesses, mistranslating and misinterpretation of the text by the L2 readers. For example, in the above mentioned study the Indian readers interpreted the "gift to the in-laws" as dowry being given to the grooms' family while the American readers look it as an 'exchange of gifts'. The influence of cultural schemas is undoubtedly apparent here. Similarly, let us take an example of a full moon. The full moon is taken as a sign of beauty in countries like Japan and Pakistan but it is often perceived as a symbol of horror and gloom in England. Likewise, Halloween which is celebrated by many across the world is unknown to people living in states like Pakistan and UAE. Hence, it may be concluded that cultural knowledge plays an important part in L2 reading comprehension. Carrell and Eisterhold (1983) claim that one of the most obvious reasons for a content schema to fail to exist in a reader is that the schema may be "culture- specific". Barnett (1989) also suggests that culture plays a central role for many text topics and schemas essentially are "culturally determined or culture specific" (p.43).

As a broad, divergent concept, the background knowledge also entails the religious schemas. Andersson and Barnitz (1984) postulate that religious schema as a part of content schema affects the readers' comprehension of texts. Their claim seems plausible and Carrell's study supports their idea. Carrell (1987) took 28 Muslim Arabs and 24 Catholic Hispanic ESL students of high intermediate proficiency as her subjects. Each student was given texts to read, one with Muslim-oriented content the other with Catholic-oriented content, with the texts differing in their rhetorical format. The subjects were asked to recall the text in writing after answering a series of multiple-choice comprehension questions. The result of the study signified that cultural-religious schemas did have an effect on the L2 readers' comprehension and recall. The subjects were better in comprehending and remembering the religiously and culturally familiar text. Based on the result of this study, Carrell asserts that content is of primary importance in the L2 reading classrooms. She says that the L2 readers do make use of their culture-specific content schemas to relate to the data input and the mapping on their existing knowledge while simultaneously constructing the writers' intended meaning. However, a fact that must be taken into consideration is that people belonging to the same culture may have different schematic knowledge. As Carrell (1983) says that "the absence of appropriate content schema needs not to be equated with cultural specificity of the schemas" (p.89). Therefore, the content schema, to activate does not solely depend on the cultural base of the text. The extent to which culture influences and shapes the background knowledge in reading is still an ongoing debate but there is a consensus that background knowledge is most important and content schema as an intrinsic part of it does have a greater effect on the readers' comprehension than the rhetorical or linguistic complexity of the text.

Implications and Recommendations for Teaching

Most successful readers of second language make use of their schematic knowledge and inferential capabilities to read and comprehend the text. They skim and scan, skip unessential words, try to guess the meaning from the contexts, use orthographical information and make use of appropriate schemas. The readers activate the appropriate the content schemas against which they try to reconstruct the text as a meaningful interpretation to the writers' work. However, the lack of language processing skills in the L2 readers often leads to failure in accessing the appropriate content schemas. Floyd and Carrell (1987) contend that the building up of background knowledge on a topic is a consideration that should be taken as an integral part of teaching learners to read. Carrell (1984) affirms that the ESL teachers must provide the students with appropriate schemas and help them to build bridges between their existing knowledge and new knowledge which essentially enables them to comprehend a text. One of the focal points must be vocabulary development which is directly proportional to teaching background knowledge. She maintains that the, "knowledge of the vocabulary entails the knowledge of the schemas in which a concept participates" (p.335). Besides this issue, the nature of schemas are interwoven with culture which in turns affects the reading comprehension in L2 readers therefore, the teachers must be sensitive to the reading problems of the pupils that arise with the culture specificity of a particular text. According to Urughart and Weir (1998), "the content of a text should be sufficiently familiar to candidates of a requisite level of ability have sufficient existing schemas to enable them to deploy appropriate skills and strategies to enable them to deploy appropriate skills and strategies to understand the text" (p.143). Furthermore, Weir emphasizes that the topic of a text must be selected by the teacher from a suitable genre and it should by no means be culturally biased. This view is endorsed by many and should be taken into account by teachers of foreign or secondary language that the text needs to be familiar enough to map on and activate the readers' appropriate schemas. The teachers can draw their students into reading with different kinds of text like familiar stories, magazines, comic books, newspapers and accessible simplified interactive articles. The material selection is of paramount importance for the L2 readers. The teachers must keep the attitudes and competencies of pupils in mind when choosing material. They should also consider the interests of the students, the content of the text-its cultural specificity, the length of it, the level of the learners and most significantly the difficulties a student might face in reading or comprehending the material. For example, the article about the baseball game in Appendix B might not be schematically appropriate for L2 readers in the Gulf or South Asian regions as the game is alien to them. On the other hand, a L2 reader residing in the target-culture settings would perhaps be familiar with the game and could make sense of the article. The level of the students as well as the genre is also extremely critical. For instance, a housewife in an ESL class possibly would not find it easy to comprehend a text related to finance (see Appendix C) as an advanced level L2 reader belonging to a Business English class would do. This is for the reason that the housewife might be a beginner and lacks the content schemas required to fully comprehend the text or the text does not appeal to her. Therefore, the teachers must take all these factors into account while picking the texts. Pupils must even be encouraged by the educators to select their own texts; sometimes if not always. Moreover, a fact that may have been overlooked by many is that it is highly impractical to restrict the texts to the readers' relevant cultures. As a part of a globalised world they need to have awareness of the world and reading provides them a pathway to gain this knowledge. To help the learners to read well, the teachers should essentially work on building their background knowledge and to accomplish this task they can carry out a number of organized pre-reading activities. Some of the axiomatic, most popular and effective ones are:

Previewing and Prediction: The previewing of a text allows the students to formulate hypotheses about the text and they then base their prediction on these hypotheses. The students make use of their top-down processes for reading and comprehending the text by taking advantage of contextual clues such as the illustrations, the title of topic or the genre of the text. The previewing involves the teachers' introduction to the text with a whole class discussion where all the students participate sharing their own sets of predictions and narrating their expectations about the passage. The schematic theorists such as Goodman (1988) propose prediction as the fundamental pre-reading activity. He states that "the brain is always anticipating and predicting as it seeks order and significance in sensory inputs" (p.16). Previewing of a text is not only restricted to giving an outline of the text, it also helps the teachers to decide if the pupils need additional background information about the topic. The teachers can point out the vocabulary and sentence structures to the students to prepare them in advance. The readers can think over the grammatical patterns and most importantly can acquire appropriate background knowledge about the passage. Their schemas provide them with a frame work for learning and acquisition of this new information.

Questioning: James (1987) says that the teachers should give the questions before reading so that "the task more closely reflects what happens in the real world" (p.184). Questioning the students about the text gives the teacher a chance of knowing what the students think of the text. The questions can be asked by the teacher or even generated by the students which could lead to accumulation of information about the text. The questions can also enthuse the students to scan the texts and find answers in it, thus stimulating their cognitive processes to work efficiently.

Brainstorming: According to Wallace (1992), one very popular kind of pre-reading task is "brain storming" (p.91). Brainstorming urges an informal way of generating ideas and concepts regarding the topic given by the teacher. Students are provided with words or a topic and they then have to come up with ideas that are associated to the key word. They have the freedom to share their opinions. Brain storming is an extremely easy, acceptable and effective activity that involves the whole class without any pressure on the students or the teacher. For example, the students might be given a few pictures and then asked to write a few words or sentences that immediately come to their mind. They then share their ideas with the whole class which have been conceived by the activation of schemas. Wallace (1992) says that the result of this kind of activity resembles the "semantic mapping". Additionally, the building up and activation of content schemas can also be aided by a variety of techniques used by the teachers in the classrooms such as lectures, illustrations, viewing of movies, slides; live-demonstration and sharing of real life examples debates and discussions, field trips; role-play, dramas; quizzes and key-concept association activities (Carrell,1984). Finally, the teachers must also use methods to develop students' linguistic knowledge; teaching them vocabulary, sentence structures and functions to enhance their reading capabilities. The pre-reading activities lay the foundation to the reading process giving way to the while-reading stage. This interactive phase of reading encompasses the activities that focus on the development of reading skills and the training of applying reading strategies in second language reading. The teachers' role in this phase is to ensure the readers' development, giving them practice in reading, identifying and working on their weaknesses while building up and activating their schemas. The post-reading activities must follow the latter and purpose of these is mostly to evaluate the students' comprehension. The teachers, in order to do this should have class discussions, follow-up activities and comprehension exercises. However, researches in the content schema activation have found the pre-reading activities to be the most significant in the reading comprehension.

CONCLUSION AND FUTURE RESEARCH

The Schema theory which highlighted the importance of schemas also elaborated on the significance of the language proficiency, the linguistic threshold and the amount of prior knowledge that the readers bring with them. A key factor in L2 reading comprehension, the background knowledge or content schemas is of utmost eminence. This study which explores the indispensability of the content schema in L2 reading is by no means an exhaustive one and due to space limitations a detailed quantitative investigation has not been carried out. However, it does entail several substantial aspects of the topic and theories relating to it in order to prove the hypothesis. A number of conclusions can be deduced from this study. Firstly, prior knowledge is imperative for the reading process and contributes emphatically in the comprehension of the L2 readers. Secondly, the development of content schemas needs explicit attention in addition to the cultural familiarization of the readers to the text. It also touches the theme of cultural sensitivity that the teachers must attain for the benefit of second language readers. Besides this, the recommended activities for the schema activation suggested in the present study provides a guideline that can be employed by the teachers in the reading sessions in order to develop the students' reading proficiency. All things considered, this study is essentially a stepping stone for further research in the subject matter.

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APPENDIX A



Illustration taken from Swan. M .and Waltr.C (1985) *The Cambridge English Course*, *Teacher's Book 2*. Cambridge, Cambridge University Press.

APPENDIX B

Chicago Tribune

Cubs deal Marshall to Reds for starter Wood, 2 Others:



Lefty Sean Marshall, who had a 2.26 ERA in 78 appearances last season, was traded to the Reds for starter Travis Wood and two others.(Nuccio DiNuzzo/Tribune photo)

By Dave van Dyck

Tribune reporter

12:47 p.m. CST, December 23, 2011

The Cubs made it official Friday, acquiring former second-round draft pick **Travis Wood** and two other players from the **Reds** for reliever **Sean Marshall**.

Included in the deal were outfielder Dave Sappelt and minor league infielder Ronald Torreyes.

Cubs President Theo Epstein said it was hard to give up a pitcher like Marshall but that "generally we're in the business of taking short-term assets and turning into long-term assets." Marshall can become a free agent after next season and the Cubs might not have received

Published by European Centre for Research Training and Development UK (www.eajournals.org) compensation if he left. Wood is under the team's control for five more years.

Sappelt, 25, was Cincinnati's 2010 minor league hitter of the year and the Class AA Southern League MVP while hitting .342 with 11 triples and 25 stolen bases for three farm clubs. He hit .361 in Class AA.

Marshall, 29, departs with a 32-40 record, seven saves and a 3.96 ERA in 292 appearances (59 starts) covering six seasons. He went 6-6 with five saves and a 2.26 ERA in 78 relief appearances in 2011.

On another front, Epstein wouldn't rule out trading Matt Garza, the subject of several rumors this winter. Again, it likely would be an older pitcher for a younger one.

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"We'll listen (to offers)," Epstein said. "There's always an active trade market for starting pitchers. ... But we don't take lightly what it means to have a top-of-the-rotation guy in the house."