Schemata Theory and its Application in EFL Moroccan Classrooms

Ouafaa Belouiza[1] and Abdessallam Khamouja[2]

Ibn Tofail University, Faculty of Arts and Humanities, Morocco

ABSTRACT: Due to a variety of reasons, reading has always been a significant problem for the majority of Moroccan high school pupils. This skill reflects the various interactions and operations that the reader's eyes and brain engage in in order to understand what they read. Teachers continue to place more emphasis on teaching vocabulary, idioms, syntax, and sentence structure than on helping pupils develop their reading comprehension. Due to the traditional reading teaching, it is difficult for teachers to cultivate students' interest in reading (Yang, 2019). Teachers rarely take into account the importance of prior knowledge as one of the main issues with comprehension training at different competence levels. To make it more clear, Moroccan high school teachers do not provide their EFL readers with prior instructions or clear strategies to enable them to comprehend the reading material in the textbooks used. The paper highlights the importance of prior knowledge in teaching reading comprehension in order to come up with a successful classroom full of enjoyable and accurate comprehension. It is the role of the teacher to help their students become better readers by teaching them how to activate and use their prior knowledge.

KEYWORDS: Reading comprehension, Schemata theory, prior knowledge, EFL students.

1 INTRODUCTION

Reading is a complex process which educators, psychologists, and linguists are interested for decades. Due to the complexity of the reading process, a number of theorists have devoted their time to defining or developing reading models. Reading comprehension is the process of getting meaning from text. Therefore, the goal is to get a broad grasp of the text's contents rather than deducing meaning from single words or sentences (Woolley, 2011). It is very obvious that reading is considered as an important part English teaching and plays a dominant role among the four skills used in the learning of the English Language. For this reason, cultivating reading ability is viewed as the core content of English teaching; which means that, the role of English reading is considered as an important factor (Yang, 2019, p, 59).

It is very obvious that successful interaction between the reader and the text is required for reading comprehension. This interaction plays a very important role in comprehension. Accordingly, prior knowledge plays an important role in enhancing reading comprehension and plays a crucial role for EFL readers. More than this, the role of prior knowledge in the reading process can help explain why students succeed or fail to grasp text. The main idea behind schemata is that readers can make sense of visual information and grasp printed material by connecting it to their prior background knowledge (BK) and experience. In other words, schemata theory (ST) attempts to explain how people integrate the new information with the information they already have (Alderson, 2000).

There is no doubt that schemata theory has had a significant impact on reading comprehension, which is considered as an interactive process that necessitates the simultaneous performance of numerous mental operations.

According to Bernhardt (1991) and Brantmeier (2004), they pointed out that the activation of prior knowledge or schema is considered as one of these operations. Studies on the role of prior knowledge (e.g. Murray, 1980 and Anderson, 1994) have shown a significant impact on reading comprehension in a foreign language. these studies have made it clear that grasping the role of schema in the reading process provides profound insights into why pupils may fail or succeed in comprehending written content.

From the perspective of psycholinguistics, Goodman (1970: 260) provides one of the most popular definitions of reading, claiming that

Reading is a selective process. It involves partial use of variable minimal language cues selected from perceptual input on the basis of the reader's expectations. As this partial information is processed, tentative decisions [or hypotheses] are made to be confirmed, rejected or refined as reading progresses.

According to this definition, the main ideas and the most useful applications of the schema theory to reading comprehension training are essentially summed up. This is especially true when it comes to the characteristics of proficient or fluent readers, the complexities involved in the extremely complicated act of reading, and most importantly, the need of background knowledge in the formulation and retention of meaning before recall and retrieval (Khartite, 2021).

2   THE MODELS OF READING

2.1   THE BOTTOM-UP READING MODEL

The key to reading comprehension, according to this theory, is vocabulary. Every words in the text must be grasped by the reader if he or she is to fully comprehend the text's meaning. In addition, contrary to the arguments made by advocates of the psycholinguistic approach about the importance of prior knowledge, the bottom-up model assumes that word identification is crucial to any reading comprehension Gough (1985). According to Gough, reading comprehension necessitates both language understanding and decoding. Which mean that, success in both language comprehension and decoding is the only way to achieve successful reading comprehension. A lack of either capacity will lead to poor reading comprehension.

This model, according to Brown (1998), depicts reading as a process that begins with the learner's familiarity with letters, sounds, and words as well as how these words are put together to produce sentences. Because it moves from partial to complete information, this paradigm is known as a part-to-whole model. Early learners can benefit greatly from this technique in the classroom. It works well since the focus is on reading individual words and recognizing letters and their shapes. This model has numerous drawbacks since it ignores the reader's expectations, background, and attitudes when applied for higher levels. Moreover, it ignores context because it just promotes memory, not taking into account the situation (Baha, 2017).

2.2   THE TOP-DOWN READING MODEL

In contrast to the previous reading model as a bottom-up model, the top-down model is about involving broad knowledge about the context to understand the decoded form of the text. In this model, too much stress is on meaning rather than structure. Reading, according to this model, is a process in which readers continuously hypothesize and analyze reading materials from a macro viewpoint, as well as actively think about and develop the meaning of the text. What is more is that, this model puts much emphasis on readers' prior experience and cultural background knowledge, while ignoring even the most basic grasp of the English language, as if we were constructing a castle in the sky. The entire structure will collapse if the foundations are not robust (Yang, 2019, p.61). what can be added about this model is that it " *suggests that readers begin to read by drawing on what they know about the structure and the meaningfulness of language, the structure of stories and other genres and their knowledge of the world to predict the general meaning and specific words in the text"* (Brown, 1998, p.9).

2.3   THE INTERACTION READING MODEL

The interactive reading process illustrates the connection of bottom-up and top-down models via the reading process. This leads us to say that the interactive process depends on both graphic symbols and textual information. In other words, there is a kind of correlation between surface structure (bottom-up reading process) and deep structure (top-down reading process) to build meaning. In the same truck, Carrell and Eisterhold view the processes included in the interactive model in which both processes (bottom-up and top-down) happen simultaneously.

The data that are needed to instantiate, or fill out, the schemata become available through bottom-up processing; top-down processing facilitates their assimilation if they are anticipated by or consistent with the listener/ reader's conceptual expectations. Bottom-up processing ensures that the listeners/readers will be sensitive to information that is novel or that does not fit their ongoing hypotheses about the content or structure of the text; top-down processing helps the listeners/readers to resolve ambiguities or to select between alternative possible interpretations of the incoming data.

Carrell & Eisterhold, 1983, p. 557)

In a nutshell, reading comprehension is a complex process of matching printed letters to phonological sounds that have meanings. Some readers adopt the bottom-up view and others adopt the top-down approach in reading comprehension. In other words, reading is a matter of decoding graphic symbols to form meaning of the text or a matter of involving broad knowledge about the context to understand the decoded form of the text. However, both kinds of readers encounter different problems in reading and understanding. In this case, the major problems lie in the difficulties of grasping the meanings of vocabulary items.

3   SCHEMATA THEORY

Anderson describes (1984) describes schema as an " abstract knowledge structure" or the readers' existing concepts about the world that determine a framework in which the readers must fit whatever they grasp from the text. It means that the more the students have schemata, the more they are able to understand the reading text According to Anderson (1984), " a schema is structured in the sense that it represents the relationship among its components parts" (Anderson & Pearson, 1984, p.259). According to McGee and Richgels in Moreillon, a schema is "a mental structure in which we store all the information we know about people, places, objects, or activities If people have no schema for a particular topic, they begin that encounter with an immediate loss of comprehension" (Moreillon, 2007, p.20). Bartlett (1932) defined schema as "an active organization of past reactions of past experiences, which must always be supposed to be operational in any well-adapted organic response" (Bartlett, 1932, 201).

3.1   TYPES OF SCHEMATA

There are three major types of schemata, namely, linguistics schemata, formal schemata, and content schemata (Carrell, 1988):

3.1.1   LINGUISTICS SCHEMA

This type of schemata refers to the readers' existing linguistic knowledge about phonetics, grammar, vocabulary and expressions. Linguistic knowledge plays an important role in understanding a text. without Linguistic planning, it is impossible for the reader to decipher and understand the text. Therefore, the more language schemes are in the reader's mind, the faster the reader gets information and the better understanding the reader may grasp. To put it differently, a second language reader must be proficient in mastering certain linguistics knowledge to decode the text. Hence, accumulated linguistic information is essential for readers to have when they want to decode.

3.1.2   FORMAL SCHEMATA

It refers to "background knowledge about of the formal, rhetorical organizational structure of different types of texts" (Carrell & Eisterhold, 1983, p560). It is the knowledge of various types of text and their structural organization of each, language structures, vocabulary, grammar, etc. Argumentation, presentation, description and narration are general types that are explained in writing books for students but the fact is that reading materials that they happen are from different subcategories under these four, as newspaper reports, poems, short stories, etc. Their specific properties act as a necessary part of the whole. to get to know them, readers find it easier to understand the entire reading material as it can help deepen their understanding; Otherwise it becomes a hindrance (Zhao & Zhu, 2012, p113).

3.1.3   CONTENT SCHEMATA

Reading comprehension is influenced by content schema, which relates to a reader's world knowledge. This type of schema is considered as an influential factor for second language readers. To explain more, readers utilize the content schema to decipher the text by guessing or predicting the meaning while selecting words, information; and to an extent, this type of schema aids comprehension by compensating for the lack of information, and to some extent, this type of schema aids comprehension by compensating for the lack of linguistic schema among readers. Carrell (1983) describes content schema " as the background knowledge of the content area of the text that a readers bring to a text" (Carrell, 1983, p.83). It's assumed that L2 readers who have or are provided relevant prior information about a text. It is assumed that L2 readers who have or are provided appropriate prior knowledge about a text will be more likely to grasp and recall the text's contents than those who have no or little background knowledge about the text.

Koh (1986) conducted study to demonstrate the impact of familiar context on student reading comprehension, which supports the idea that one's comprehension of a text is dependent on how much relevant prior knowledge the reader has about the subject

matter of that particular text. He went on to say that learners need to be made aware of what makes reading successful. To put it differently, they must use their content schemata to reconstruct meaning from the text rather than focusing on word-for-word deciphering, which is common in ESL reading materials.

4 FUNCTIONS OF SCHEMATA

Wilson and Anderson (1986) have recognized the various functions of schemata in the same way that they have identified the various categories of schemata. They suggest that schemata have six main functions, which seem to emphasize how important they are in reading comprehension. They argue that schemata, in particular, play an important role in

- Arranging the information, they provide
- Assisting the reader in determining the most significant components of a text (the maxim of relevance)
- Assisting the reader in making inferences to complete the meaning of the text (inferential elaboration)
- Allowing the reader to recall the necessary information through ordered memory searches
- Allowing the reader to create summaries of the important propositions.
- Assisting the reader in forming hypotheses in order to recall a text (inferential construction)

In the same vein, according to Rumelthart (1980), another key proponent of schema theory, schemata have four essential functions in the reading comprehension process. The first is perception and/or recognition, which means that humans prefer to recognize individual components only in the context of the whole, and that new information only makes sense when mapped against our previous knowledge systems. The comprehension function is the second function. The second function is about comprehension. That is, one may only be said to have understood a text or discourse if they have found a schemata configuration that accounts appropriately for every single bit of information in the reading text. The third function has to do with memory. It has been recognized, so that what we recall from a reading text is definitely linked to the schemata activated to bear during the reading and interpretation process. The fourth and final function is concerned with how our existing schemata facilitate the development and assimilation of new schemata (Rumelthart, 1980, p. 45).

5 IMPLICATIONS AND APPLICATIONS OF SCHEMATA THEORY TO CLASSROOM READING INSTRUCTIONS

In the teaching of reading, schema theory appears to have a variety of implications as well as applications, particularly when dealing with difficult reading texts or culturally bound materials in an ESL or EFL context. As has already been implied, "*some [EFL or ESL] students' apparent reading problems may be problems of insufficient background knowledge*" (Carrell, 1988b, p.245) or a complete lack of suitable schemata for the reading at hand As a result, it appears that, in the case of reading problems that are assumed to be topic-related, 'narrow reading' within the student's area of knowledge or interest may help them improve their reading skill by providing them with adequate opportunity to learn relevant schemata that might make the reading material more accessible for the student (Carrell & Eisterhold, 1983, p.86). Similarly, when schema inadequacies are very culture-specific, it would be tremendously beneficial to replace them with less culturally loaded texts or texts based on the readers' own experiences and cultural background (Carrell, 1988, p.85). On the other hand, it has been suggested that "*every culture-specific interference problem dealt with in the classroom presents an opportunity to build new culture-specific schemata that will be available to the EFL/ESL student outside the classroom" (Carrell* & Eisterhold, 1983, p.89).

It may be argued that rather than pre-teaching every item of knowledge or foreign or culturally loaded vocabulary in a reading text, it would be more appropriate to prepare students by "*helping them build background knowledge on the topic prior to reading, through appropriate pre-reading activities*" like previewing, pre-questioning of whole class discussion (Carrell, 1988b, p.245).

It is important noting that reading comprehension problems aren't usually caused by schema deficits. The latter are sometimes available, but absence or non-comprehension occurs as a result of their non-activation during text processing. As a result, prior to any actual reading in their reading lessons, reading teachers must ensure that students' relevant schemata are activated (Carrell, 1988a, p.105). Some of such readers may have sufficient prior knowledge, but because their schemata are inactive while reading, they misrepresent the meaning given in the text or simply fail to grasp the gist. Thus; the implication in Carrell's terms remains to be that "*pre-reading activities must accomplish both goals: building new background knowledge as well as activating existing background knowledge*" (Carell, 1988b, p.248).

When it comes to the role of prior instruction in reading comprehension, it appears that the facilitative effect of a variety of pre-reading exercises has been empirically supported, and as a result, they are extensively employed in both EFL and ESL reading classrooms. Pre-reading activities that include questioning, previewing, providing a graphical context, and/or employing the 'brainstorming' technique to find out what students bring to the reading text as prior knowledge are particularly useful and popular in the literature.

6 CONCLUSION

This article gives a brief overview of the schemata theory, which is exemplified by discussing certain aspects like linguistic, formal, and content schema, bottom-up and top-down reading processes, and the interactive reading process. The article also emphasizes how crucial schemata theory is for improving reading comprehension and for engaging pupils' prior knowledge to help them understand written materials. This implies that teachers must take into consideration the importance of prior knowledge in enhancing reading comprehension. It can be concluded that the role of Moroccan high school teachers is quite instrumental in improving EFL readers' reading skills. Their awareness of the importance of background knowledge will contribute to providing EFL learners with enough information to help them interact with the written texts more effectively and find the content more enjoyable.

REFERENCES

[1] Anderson, R. C. (1994). *Role of the reader's schema in comprehension, learning, and memory.* Newark, Delaware: International Reading Association.
[2] Anderson, R.C., & Pearson, P.D. (1984). '*A Schema-Theoretic View of Basic Processes in Reading Comprehension.*' In P.D. Pearson, R. Barr, M.L. Kamil, & P. Mosenthal (Eds.). The Handbook of Reading Research (pp. 255-292). New York: Longman.
[3] Alderson, J. C. (2000). *Assessing reading. Cambridge*: Cambridge University Press. doi: 10.1017/CBO9780511732935.
[4] Baha, D. O. (2017). *Reading models: A review of the current literature*. International Journal of English Literature and Social Sciences, 2 (3), 44–49. https://doi.org/10.24001/ijels.2.3.6
[5] Bartlett, F. C. (1932*). Remembering*: A Study in Experimental and Social Psychology. Cambridge: Cambridge University Press.
[6] Bernhardt, E.B. (1991). *Reading development in a second language*: Theoretical, empirical and classroom perspectives. Norwood, NJ: Ablex Publishing Corporation.
[7] Brantmeier, C. (2004). Gender, violent-oriented passage content and second language reading comprehension. The Reading Matrix, 4 (2), 1-19.
[8] Brown, A. (1998) A Practical Guide to Teaching Reading in the Early Years. London: Paul Chapman Publishing Ltd. p. 9.
[9] Carrell, P. L., & J. C. Eisterhold. (1983). *Schema Theory and ESL reading Pedagogy.* TESOL Quarterly, 19, 81-92.
[10] Carrell, P.L. and Eisterhold, J.C. (1988). *Schema Theory and ESL Reading Pedagogy*. Reprinted in Carrell et al. Interactive Approaches to Second Language Reading (1988).
[11] Carrell, P. L., Devine, J. & Eskey, D. E. (eds). 1988. *Interactive Approaches to Second Language Reading*. Cambridge: Cambridge University Press.
[12] Gough, P. B., & Tunmer, W. E. (1986). *Decoding, reading, and reading disability.* Remedial and Special Education, 7 (1), 6-10. Available at: https://doi.org/10.1177/074193258600700104.
[13] Jukil, A. (2018). The role of EFL teachers and students in activating ells' ackground knowledge to increase comprehension. Polytechnic Journal, 8 (2), 1–20. https://doi.org/10.25156/ptj.2018.8.2.70.
[14] Khartite, B. (2021). *Implications of Schema Theory on Teaching EFL and ESL Reading comprehension*: The Role of Pre-Reading Activities: The Case of ENSAM Meknes. International Journal of Linguistics and Translation Studies, 2 (4), 75–90. https://doi.org/10.36892/ijlts.v2i4.173
[15] Koh, M.Y. (1986). *The role of prior knowledge in reading comprehension*. Reading in a Foreign Language, 3, 375-380.
[16] Moreillon, J. 2007. Collaborative Strategies for Teaching Reading Comprehension. Chicago: American Library Association.
[17] Rumelhart, D. E. (1980). *Schemata: the building blocks of cognition*. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (eds), Theoretical Issues in Reading Comprehension. !ùHillsdale, New Jersey: Lawrence Erlbaum Associations. pp. 77-85.
[18] Woolley, G. 2011. *Reading Comprehension: Assisting Children with* Learning *Difficulties*. DOI 10.1007/978-94-007-1174-7_2, © Springer Science.
     +Business Media B.V. 2011.
     http://www.springer.com/978-94-007-1173-0.
[19] Xue, Y. (2019). *The Use of Schema Theory in the Teaching of Reading Comprehension.* International Journal of Liberal Arts and Social Science, 7 (4), 58-63.
[20] Zhao, X & Zhu, L. (2012). *Schema Theory and College English Reading Teaching.* English Language Teaching, 5 (11). 111-117.