

Received : 08/03/2020

Published 30/06/2020

The Learning/Teaching Of Reading Comprehension

Ghizlène Saidi^{1*}

¹ University of Blida, Algeria

Introduction

This paper attempts to demonstrate the contribution of cognitive psychology and schema theory to the teaching/learning of an L2 skill notably reading comprehension. The involvement of cognitive psychology and particularly schema theory in reading comprehension is not new. Indeed, ever since the shift from a behaviourist to a cognitivist view of how languages are learned in the 1970's, the interdisciplinarity between linguistics, language teaching/learning and psychology emerged. This shift marked a new era for interdisciplinary research involving linguistics, language teachers and psychologists who worked together to provide a full picture of how languages are learned.

Indeed, the major developments of knowledge representation described under the rubric of schema theory (Bartlett 1932, Rumelhart and Ortony 1977, and Rumelhart 1988) exerted a pervasive influence on current thinking about text comprehension. Carrel et al (1988) and later Alderson (2000) claim that schema theory accounts for text interpretation through schema activation using pre-reading activities.

Indeed, schema theory provided a strong rationale for pre-reading activities. The major strength of this theory consists of drawing our attention to the important contribution of the reader's schematic knowledge to the reading process and of the interactive process of constructing meaning between the reader and the text . This implies that pre- reading activities can be used to provide a conceptual bridge between the reader's prior knowledge and the textual information to achieve text comprehension. What is the contribution of schema theory to reading comprehension and how can pre-reading activities facilitate reading comprehension in language learning.

1-What are the concepts of schema theory?

In order to understand the nature and function of schema theory in reading comprehension, we must first briefly trace its historical background. Schema theory has existed in various forms since 1932, yet the idea has its main impact in the 1970's and 1980's with the development of computer science and cognitive science.

The concept of schema theory is attributed to Bartlett who developed it in 1920's. Bartlett is well remembered for his account of how information in stories can be configured in memory for further recall, but his concept was suggested when behaviorism was the dominant intellectual framework. At the core of this framework was the exclusion of mental entities from scientific psychology. Consequently, Bartlett's ideas were swept aside by behaviorism till the advances of computer science and a move away from traditional methods. These then clarified the vague notions and ideas of Bartlett and allowed the emergence of schema theory as a theoretical framework to describe the role of knowledge in mind (Ajideh 2003 and David 1995) . Since then, a number of L2 theorists (Carrell 1988, Hudson 1988 and Alderson 2000) acknowledged the crucial role of reader's prior Knowledge.

One of the main strengths of schema theory stems from the insights it provided about how prior knowledge stored in long term memory functions in the process of interpreting new information. Schema theorists such as Rumelhart and Ortony (1977), Rumelhart (1980) and Marshall (1995) view schema theory as a framework for the mental representation of knowledge. It is employed in the process of interpreting data and activating information from memory, organizing actions and determining goals. In this connection Rumelhart (1980:34) states that:

“A schema theory is basically a theory (...) of how knowledge is represented and about how that representation facilitates the use of the knowledge in particular ways (...). All knowledge is packaged into units (called) schema”

A schema is then a data structure for representing the generic concepts stored in memory.

There are schemata embodying our knowledge about all concepts underlying objects, situation, events, sequences of events, actions and sequences of actions. The predominant structural representation of schemata represents them as networks of connected elements. According to Rumelhart and Ortony (1977) and Rumelhart (1980), a schema consists of a network of interrelations that are assumed to hold constituents of the concept of interest. Simply put, a schema is activated when one of its constituent elements appears to match a part of schema. The target element being linked to other elements, when one or more of these elements become active, they spread their activation to the other elements to which they are connected . This may lead to the activation of many interrelated elements that work together as a single schema. The networks develop after similar repeated experiences. Different types of schemata are identified in the literature i.e. content, formal and linguistic schemata.

2-Content, formal and linguistic schemata

Carrell (1988) drew a distinction between two types of schemata: content and formal. Content schemata refer to the background knowledge of the content area of the text such as texts about politics, science or history. Alderson (2000) claimed that if readers know nothing about the subject matter of the text they will face difficulties to understand the text. Formal schemata involve background knowledge about the rhetorical structures of different types and include knowledge of the language such as lexical and grammatical features. As Eskey

(1988:96) suggested “knowledge of the language must be an integral part of whatever background knowledge is required for a full comprehension of the text.”

3-What is the role of Schema theory in the reading process?

During the reading process, readers are involved in the process of building a correspondence between the relevant schemata and the information supplied by the text. They need to fill in gaps in a schema which are not specified in the text. This shows that no text is fully explicit, and the information needed to fill the slots is not always found in the text, but may be supplied by the reader’s schematic knowledge. In order to fill the slots, readers need to rely on both textual information and their schematic knowledge.

Within a schema-theoretical framework, reading is viewed as a process of constructing meaning through a dynamic interaction between the reader’s schematic knowledge and the textual information. In other words, efficient comprehension requires the ability to relate the information suggested by the text to the reader’s pre existing knowledge. The process of interpretation is the outcome of two basic modes of processing namely Bottom-Up and Top-Down processing. On the one hand, Bottom-Up processing is evoked by the incoming information. It deals with the decoding of individual linguistic units and building meaning from the smallest to the largest, then modifying schematic knowledge on the basis of the information in the text. As these Bottom-Up processes converge into higher levels, more generated schemata are activated. Top-Down processing, on the other hand, is conceptual driven. It leads to the reformulation of conceptual expectations and hypotheses on the basis of reader’s schematic knowledge and checking the text for confirmation or refutation of those previously set expectations (Carrell 1984, Carrell and Eisterhold 1988).

To illustrate the importance of activating schematic knowledge that fills in the gaps in texts, and the simultaneity of top-down and bottom-up processing, let us briefly consider the following sentences cited in Rumelhart and Ortony 1977)

1. Mary heard the ice cream coming down street.
2. She remembered her pocket money.
3. She rushed into the house.

When reading these sentences, readers can construct an interpretation of the text. They may presume that Mary is a little girl who likes eating ice cream, so when she heard an ice cream man coming, she wanted to buy some ice cream. She knows that buying ice cream costs money. She remembered some money which might have been given to her for her birthday, so she hurried to the house to get the money before the arrival of the ice cream man.

This information is not stated in the text. Readers need to understand it on the basis of their schematic knowledge to give a text a consistent interpretation. They may keep this interpretation unless some other contradictory information is encountered in the text. What is understood depends heavily on readers’ schematic knowledge. If readers activate an appropriate schema they can miss the meaning of the text. According to Carrell et al 1988)

and Bransford et al (1984) that successful comprehension is achieved as long as the new information processed through Bottom-Up processing and the conceptual predictions made by Top-Down processing are congruous and compatible. Otherwise comprehension can be impeded. Anderson et al (1976) noted that failure to engage in the reading process is not due to the fact that readers do not possess the relevant schemata, but because they might have failed to activate the appropriate schematic knowledge. And Hudson (1988:189) also stated that “the reading problem of L2 is not due to an absence of attempts at fitting and providing specific schema (...). Rather, the problem lies in projecting an appropriate schema”. So what can teachers do to help activate appropriate schema? They may provide explicit instruction through pre-reading activities (Carrell 1988, Hudson 1988, Hung 1990 and Aebersold et al 1997).

4-Activating schemata through pre-reading activities

Based on the premise that texts are never completely explicit and the reader needs therefore, to rely on pre-existing schemata to provide plausible interpretation, direct instruction on background knowledge through pre-reading activities can be done as a means to enhance reading comprehension is emphasized.

As discussed by Carrell (1988) and later by Ur (1996) and Hedge (2000) pre-reading activities are the kind of activities that are given to students before they are engaged in the reading process. These activities take advantage of students’ background knowledge about the topic, vocabulary and rhetoric. Carrell (1988) states that such activities provide a conceptual bridge between this knowledge and the information in the text. Their objective is to highlight the different types of knowledge and biases that would influence the way students read and learn from the passage as well as activate the necessary schematic knowledge. Two types of activities can be used: questioning to activate content schemata and topic-specific vocabulary to activate linguistic schemata.

4 a. Activating content schemata through questioning

The pre-reading activities that activate a text’s content area take an inventory of what students know about the topic before instruction. As stated by Grellet (1981), Carrell et al (1988) and Oded (1994) direct instruction on prior knowledge related to the content of the text can be embedded into an approach such as questioning. As reviewed by Carrell (1988) and later by Chia (2001) this type of pre-reading activities merely consists of activating students’ background knowledge in relation to the topic through text- related questions or answering a series of statements which students are asked if they agree or disagree with. Hedge (2000) suggests that such activity can take the form of class debates and /or interactive discussion through which students express and discuss their opinions with their classmates as well as review and share their past experiences in relation to the topic.

4 b. Activating topic-specific vocabulary

Getting ready for reading also means giving students the opportunity to preview topic-specific vocabulary i.e. words that are frequently associated with the topic. According to Carrell et al (1988) to be effective, teaching vocabulary knowledge should be interwoven with students' background knowledge of the topic of the text. They suggest a parallel approach in which vocabulary schemata are developed by pre-teaching vocabulary and prior knowledge concurrently. Chia (2001) proposes a direct vocabulary instruction that focuses on semantic mapping i.e. an organized management of vocabulary concepts which serves as a diagnosis of what students know about the topic. Put simply, she assumes that by introducing the topic orally the teachers would ask students to make free association with it.

Conclusion

We have attempted in this paper to demonstrate the crucial contribution of cognitive psychology particularly schema theory in learning/ teaching reading comprehension. As stated earlier, Schema theory has stressed the importance of background knowledge within a psycholinguistic model of reading in which the reader is assigned the responsibility of making sense of the text on the basis of his schematic knowledge. Within this line of thought pre-reading activities can play a vital role in reading comprehension as students can relate new information appearing in the text with readers' existing knowledge. The traditional teaching of reading comprehension, based on giving students a text followed by comprehension questions and asking them to respond in writing, does not provide schema activation through pre-reading activities.

In this procedure, students approach the text without any introduction or occasionally teachers set pre-teaching of some linguistic difficulties (syntactic and lexical). All often, students' background knowledge of the subject matter is ignored and students are not encouraged to use their schematic knowledge or preview topic-specific vocabulary before reading. This may explain why they tend to be word by word processors (i.e. read word by word) and thus rely heavily on visual information in the text which often hinders their comprehension. As Carrel (1988) and Hudson (1988) rightly note, in the absence of something to trigger students' relevant schematic knowledge about the topic, students will find the text difficult to understand. We believe that ideas brought about by schema theory are crucial for understanding the process of reading that linguistics alone cannot provide for. This interdisciplinarity between applied linguistics and cognitive psychology is essential for language teaching today.

References

1. Aebersold, J.K and Field, M.L (1997) From Reader to Reading Teacher and Strategies for the Second Language Classroom, Cambridge: Cambridge University Press.
2. Ajideh, P (2003) "Schema Theory Based pre-Reading Activities: A neglected Essential in the Reading Class", The Reading matrix Retrieved on: <http://www.readingmatrix.com/article/ajideh/article.pdf>
3. Alderson, C.J and Urquhart, A.H (Eds) (1984) Reading in a Foreign Language, London, Longman.

4. Alderson, J.C (2000) Assessing Reading, Cambridge: Cambridge.
5. Anderson, R.C, Richards, R.C, Schallet, D.L and Goetz, E.T (1977) “Framework for Comprehension Discourse” American Educational Journal, 14/4, 367-381.
6. Bransford, J.D, Stien, B.S and Schelton, T (1984) “Learning From The Perspective of The Comprehended”. In Alderson, J.C and Urquhart A.H (Eds) (1984) Reading in a Foreign Language, London, Longman.
7. Carrell, P.L (1983) “Three Components of Background Knowledge in Reading Comprehension” Language Learning, 33/183-207.
8. Carrell, P.L (1984) “Schema Theory and ESL Reading Implications and Applications” The Modern language Reading , 68/332-43
9. Carrell, P.L, Devin, J and Eskey, D.E (Eds) (1988) Interactive Approaches to Second Language Learning, New York, Cambridge University Press.
10. Carrell, P.L and Eisterhold, C (1988) “Some text-Boundedness and Schema Interference in ESL Reading” In Carrell, P.L, Devin, J and Eskey, D.E (Eds) (1988) Interactive Approaches to Second Language Learning ,New York, Cambridge University Press.
11. Chia, H.L (2001) “Reading Activities for Effective Top-Down Processing”.English Teaching Forum 39/11-22
12. Davies, F (1995) Introducing Reading , Penguin Books.
13. Eskey, E.D (1988) “Holding in the Bottom: An interactive Approach to the Language Problem for Second Language Readers. In Carrell, P.L, Devin, J and Eskey, D.E (Eds.) Interactive Approaches to Second Language Learning, New York, Cambridge University Press.
14. Grellet (1984-1) Developing Reading Skill, Cambridge, Cambridge University Press.
15. Hedge, T (2000) Teaching and Learning in the language Classroom, Cambridge, Cambridge University Press.
16. Hudson, T. (1988) “The Effects of Induced Schemata on the ‘Short Circuit’ in L2 Reading: Non Decoding Factors in L2Reading Performance”. In Carrell, P.L, Devin, J and Eskey, D.E (Eds.) (1988) Interactive Approaches to Second Language Learning, New York, Cambridge University Press.
17. Marschall, S. (1995) Schema Problem Solving, Cambridge, Cambridge University Press.
18. Oded, B. and Stavanoas, A. (1994) “The Effects of ‘False’ Schemata Activation on The Construction of Meaning”, System , 22/4: 495-507
19. Ur, P. (1996) A Course in Learning Teaching, Cambridge, Cambridge University Press.