

Schema Theory and Reading Comprehension at Ibri College of Applied Sciences-Oman

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Abstract: Schema, or as it is called sometimes, prior knowledge, plays a very essential role in facilitating comprehension. It is a kind of accumulated storage of past experiences- conscious or subconscious- that has a direct effect on the material at hand. The one who understands well and/or fast, is the one with an adequate schema. Failure of comprehension is a sign of lack of prior knowledge. In order to get a good idea about this issue, the researchers have distributed a questionnaire among a group of students in the Foundation Year (FY) at Ibri College of Applied Sciences. What we have found is that schema has a very great effect on the reading comprehension—without which, little or no comprehension occurs. Discussion, implications, and suggestions will be explained in detail in the paper.

Keywords: schemata, activate, comprehension, reading, past experience, printed text, pictorials

Introduction

To fully comprehend a certain text, readers should have sufficient prior knowledge. This knowledge helps absorb the material dealt with. When readers face a new subject, they exert efforts to understand it, and to get that comprehension, they normally “Give” the text more than what they “Take” from it. Comprehension does not discriminate between native or nonnative speakers of English; it is due to **Schema**, whether it exists or not. This paper highlights the major role played by prior knowledge in making reading more palatable and enjoyable.

Review of the Literature

Schema plays a very significant and vital role in getting a considerable idea about all things around us; it deepens people’s way of comprehension and makes it as narrow and concentrated as possible.

A schema is a cognitive structure that serves as a framework for one’s knowledge about people, places, objects, and events. Schemas help people organize their knowledge of the world and understand new information. While these mental shortcuts are useful in helping us

make sense of large amount of information we encounter on a daily basis, they can also narrow our thinking and results in stereotypes (Vinney, 2019, para. 1).

According to Pankin (2013, para. 1), “Schema theory is a branch of cognitive science concerned with how the brain structures knowledge”. In fact, the brain contains an infinite amount of information on so many fields; academic or non-academic. Interestingly enough, the brain always archives all sorts of information according to type, importance, usefulness, etc., therefore, when the reader tackles a certain material, his /her brain searches for a suitable prior knowledge related to what the person is reading or listening to so as to facilitate its comprehension. Moreover, understanding a reading material well is contingent to the proper prior knowledge in the reader’s brain. “According to schema theory, comprehending a text is an interactive process between the reader’s background knowledge and the text. Efficient comprehension requires the ability to relate the textual material to one’s own knowledge” (Seymour. 2017. Para. 2). Schema theory has many types that help people understand what goes on around the globe; linguistic and content schema.

Types of schema 1. Linguistics schema :Linguistic schema includes the decoding features a person needs in order to understand how words are organized and fit together in a sentence (be it spoken or written discourse).2. Content schema: Content schema refers to knowledge about the subject matter or content of a text (Miranda, 2014, para.3).

On some occasions, there happens to be a missing link in the comprehension process. This is normally reflected on the overall understanding of the content. The problem seems triangular; misunderstanding the writer, no sufficient guidelines or clues given, or the reader has no appropriate background knowledge about the material being tackled. If one of these links is missing, the comprehension process will be negatively affected.

Failure in understanding a text: 1.The reader doesn’t have the appropriate schemata. 2. Clues given in the text (by the author) are insufficient. 3. Reader might misunderstand the author and come up with a different understanding (Miranda, 2014, para. 6).

For full comprehension, there should be a strong combination between what the reader has in their heads and the information on the page. It is almost called “transaction”.

The information in our head transacts with what is on the page to help us create meaning. So, instead of bottom-up movement, there is a simultaneous two-way flow of information. In other words, we use what is in our head to help us make sense of what’s on the page (Johnson, 2015, para. 3).

Dedicated teachers should properly choose the type of material, exercises, and activities they give to their students provided that they suit their academic level and their background knowledge they already have. Some ESL/EFL classrooms have multinational language speakers and care should be taken not to select problematic issues: this might spoil things.

The type of the subject being discussed plays a major role in students' comprehension. Imagine a reading passage about gravity, space, chemistry, etc. when students have no background about these matters, and not been given any clarification or schema activation. They will struggle a lot to try to get some ideas about the material they encounter. In this case, students may just memorize, learn by heart, parrot, or give up. The gap between their level and the writer's is so tremendous. They might think they are not mature enough, or inferior to the writer. However, this topic becomes easier for those who have the appropriate knowledge about it. When students are given passages about their own folklore, daily -life events, or culture, they feel they can read quickly, able to understand and discuss all tiny and minute items about the topic because they already have the schemata that ease comprehension. See the following quotation about the image of a "dog", and how a child develops a certain schema about it.

For example, when a child is young, they may develop a schema for a dog. They know a dog walks on four legs, is hairy, and has a tail. When the child goes to the zoo, for the first time and sees a tiger, they may initially think the tiger is a dog as well. From the child's perspective, the tiger fits their schema for a dog (Vinney, 2019, para. 5).

If a person suffers from a tooth ache, he/she has to see the dentist depending on the prior knowledge stored in the head. If a car is out of service, its owner first thinks of the mechanic, not a dentist, engineer, or butcher. That is the way schemata work. However, there is a heated debate about the amount of schemata people have. This depends mainly on the level of exposure to the global knowledge, age, position, kind of job performed. Children have limited percentage of acquired schema, while the mature have much more. The academic level plays an important role in increasing schema- quality and quantity. For example, professors and experts normally have much schemata compared to their students at university.

That is a simple example, but our schemas get incredibly complex as we learn more about the world, and particularly as we become experts in the field. The more we know, the bigger and more complex our schemas become. However, the more we know, the easier it is to remember new information related to the schema-because there is more pre-existing information in our heads that we can relate-and thus attach-it to. (What is schema, para. 3 (n.d.)).

Some teachers have their own strategies in activating students' schemata; they may introduce a certain title or a group of words and ask students to guess what that is about, depending on their prior knowledge. Moreover, they might provide them with certain pictures about different things, space- crafts, microscopes, balloons, etc. and elicit as many words as possible about every object. Other teachers may ask students to preview a specific reading passage to guess what sort of information exists.

Another way to help students activate and organize the students' prior knowledge is to help them quickly preview a reading selection and predict what kind of information they may find.

When students preview a reading selection, they do not begin to read it, but rather they scan each page (or part of the passage), looking at illustrations and text features such as boldface print. (Ngadiman, 1994, para.39).

Some teachers give their students certain words, expressions, or titles that convey much information. This way, students' schemata are easily activated. Take for example a "fire brigade" or a "milkman", or a "fishing rod". All these words give much information before starting reading the text.

One assumption that has been made about schema activation is that some words or groups of words or the title of a text are suggestive and they may signal a certain schema. For example, a textual stimuli may affect a schema in two ways. If a stimulus is highly suggestive of a certain schema, that schema as a whole may be activated. For example, the mention of a police detective may activate a "murder" schema. (Czarneck. 2018, para.5).

Almost all pieces of literature have a sort of introduction that introduces the topic to the readers and gives them a general idea to know even little things about it. In other words, readers should be provided with some expressions, constructions, or certain meaningful clues to comprehend the text, no matter how young or old they are.

It makes good sense that to comprehend a story or text, readers will need a threshold of knowledge about the topic. Sometimes we call it domain-specific knowledge or topical knowledge. Without such knowledge, it becomes difficult to construct a meaningful mental model of what the text is about (Kaefer, Neuman, and Pikham, (n.d), para. 7).

What if students use their mother tongue in reading some complex content? This may help them get more knowledge about certain subjects. Imagine that they have to read an article about physics or space. With no prior knowledge about this article, no- or little- comprehension occurs. But if teachers assign some articles in students' first language about the above two subjects, more comprehension is gained. What about trying another step: giving students "freedom of choice? " --with the ultimate freedom to select the type of reading they love. This helps them enjoy reading and store a certain amount of vocabulary as a prior knowledge for the future (Krashen, 1993).

Activating prior knowledge normally takes place before starting the lesson. It could be through introducing new vocabulary, pictorials, warming up questions, etc. what should be taken more care of is teaching receptive skills such as reading and listening—they need to be introduced in an easy way with much activation.

When doing receptive skills work (listening and readings) with your students, it is important to take time at the very beginning of the lesson to activate your students' experiences with and knowledge of the topic of the listening/reading. In TEFL this is called activating background

schema. Doing this immediately engages your students, gets them using English, and sets them up for more successful listening/reading comprehension. (Greenwood, 2011, para.1).

In fact, activating students' prior knowledge is so important in eliciting what they have in their minds about a certain topic. This makes teachers feel comprehension will be easier.

Activation process is a two- way process—sort of accumulation of what students already have, and providing them with what they need. This way teachers are sure their students will comprehend the material they give to them. Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content. (Ferlazzo & Sypniesky, 2018, para.2).

Utilizing technology in activating prior knowledge is marvelous. Teachers may accompany their students on field trips and create some documentaries related to units in the syllabus they are studying. The teacher may make short videos to document certain items to cover in class, or a video about certain animals in a local zoo, or on nearby farms, etc. Students will enjoy these trips and get information indirectly. After some time, when in class, students start talking about what they had seen and watched during those trips. This consciously, or subconsciously, helps them get their prior knowledge activated.

We've used short videos (so it doesn't take a lot of instructional time) to learn about the gray whales just off the shore of Mexico, visiting Yosemite National Park, the history of Veterans Day and to hear calypso music from the Caribbean. Watching these short video clips really engages my students in the lesson, too. It's like taking a virtual field trip to another part of the planet or traveling in a time machine to the events of the past. When the video is over, I build on what we just watched by doing a Turn-and-Talk. Students simply turn to a partner and talk about what they just saw. This is also a good time to invite questions so they can help make sense of the video and how it connects with what we will be learning(Camden,(n.d), para.5).

Recommendations

-teachers should always ask students about what they expect to happen at the end of the stories given to them in class.

-it is so beneficial if students form groups and discuss certain topics, answering some question words i.e., what, where, how, why, etc.

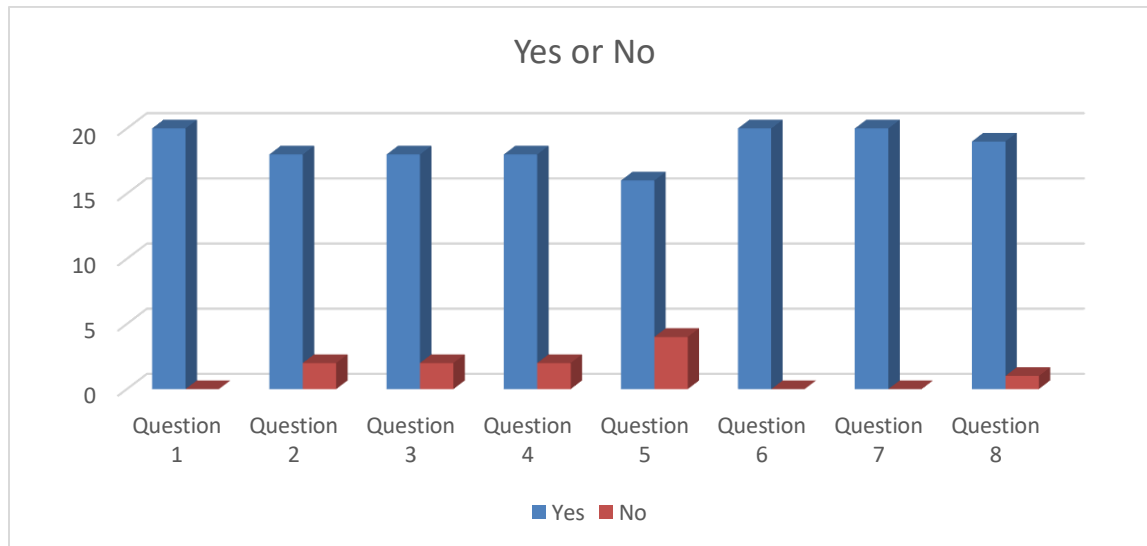
- students should bear some responsibility in class such as describing pictures in the text and guessing the reason why they are included.
- teachers should encourage students to apply some reading techniques – skimming and scanning, as two different ways of grasping information out of a text.
- underlining some KEYWORDS in the passage at hand draws students' attention to the role they play in introducing the text.
- utilizing pictures in games is rewarding; connects the thread of thoughts in the text and eases comprehension.
- students should be given the chance to compare and contrast what they come across in the text, for example exercises, vocabulary: antonyms and synonyms, etc.
- teachers might start the lesson by introducing simple topics with easy structure, and then gradually move to a more complex topics.
- students should be encouraged to form questions about the text being discussed so as to check how interesting it is for them.
- open-minded teachers should free their students and let them choose some topics they really like and discuss that with their colleagues in class.
- though not adopted by many, teachers may ask certain students to read passages aloud in class while students repeat. In the end, the teacher might ask them what they have comprehended.

Survey Result

A survey was conducted among (20) Foundation Program (FY) students at the College of Applied Sciences- Ibri in the Sultanate of Oman. The purpose of the survey is to collect adequate information about students' view points on Schema Theory and Reading Comprehension.

The survey is conducted by means of a questionnaire that deals with three types of questions: (yes, no), (agree, disagree), and (possible, not possible) questions.

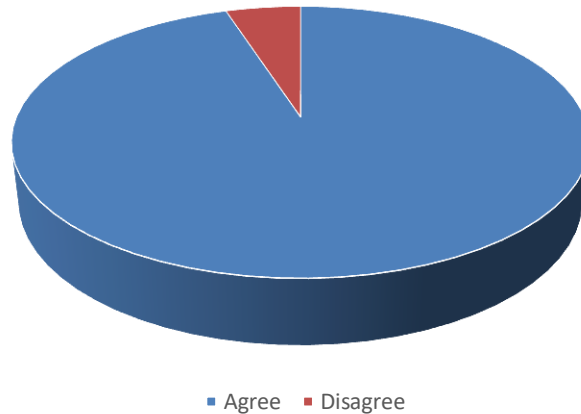
Table 1: Shows students' responses to Yes , No questions.



From the analysis of table 1, the most significant items for the (yes, no) questions are as follows. The bar graph clearly states that all students understand everything easily when their teacher introduces a new lesson by activating their prior knowledge using pictorials. For the second question, (18) students understand the topic well if it is familiar to them—about folklore, local habits, traditions and customs. In the third question, (18) say that if the topic is sophisticated, and the teacher does not activate their schema, they do not understand it completely; they just learn the details by heart---parroting. the fourth question, however, shows that the majority- up to 18- believe that to understand a reading passage, there should be an interactive process between the reader's prior knowledge and the text. Moreover, for the fifth question, (16) students said it happens, sometimes, that they do not understand a certain topic at all, and they admit that it is due to the lack of the adequate schema. In the sixteenth question, all agree that dedicated teachers should be careful when choosing the type of material, exercises, puzzles, etc. they give to students and make sure they suit their academic level and related to their background knowledge. Question seven shows that the more they know about the world, the more prior knowledge storage is gained. In the eighth question, (19) agree that when teachers utilize technology in classrooms (documentaries, films, etc.), students can remember things better, which is a positive sign of increasing prior knowledge about the fields they are exposed to.

Table 2(pie chart): Students' responses to their agreement to the statement.

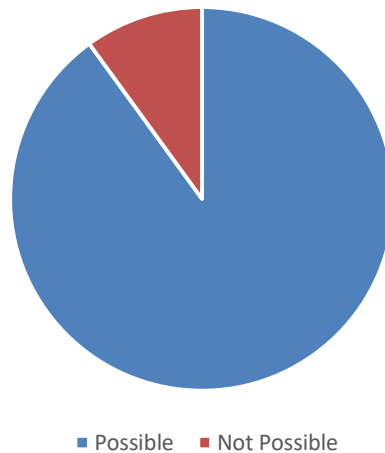
9. If teachers, from time to time, give students the ultimate “freedom of choice” to choose their favorite topics. This, in turn, increases their schema.



From the analysis of the data of table two (pie chart), the most significant item is that this pie chart sheds some light on the second type of questions: (agree, disagree): (19) students out of (20) agree that if teachers, from time to time, give students the ultimate “freedom of choice” to choose their favorite topics this, in turn, would increase their schema.

Table 3(pie Chart): Students’ responses to their choice to the statement.

If teachers allow students to read some topics in their first language, will this help in accumulating the amount of prior knowledge they already have?



From the data of table three (pie chart), the result clearly states that (18) agree that if teachers allow students to read some topics in their first language, this would help in accumulating the amount of prior knowledge they already have-- better understanding results in better grades.

Activating students' prior knowledge results in better comprehension. Dedicated teachers should work –hand in hand-with their students to make them feel positive, relaxed, and comfortable in class to achieve full understanding. From the analysis above, the importance of schema theory and reading comprehension proves useful, vital, and necessary.

Conclusion

In order to get high comprehension while reading, schemata should be activated well. This can be done through a number of things such as warm- up activities, pictorials, previewing, etc. Instructors should select the materials that suit their students' level. The more information readers have about a certain topic, the easier comprehension becomes. Readers normally give the text more than what they take from it, which is due to the activation process.

About the Researchers

Dr Mohammed Al Ghafri is a full-time lecturer in the Department of English at Ibri College of Applied Sciences- Oman. He holds a PhD in teaching English (TESOL) from the University of Leeds where he also got his MA in Education. He has had different positions: head of the English Department, assistant dean, English supervisor and head of follow up and training in Oman. His research interest is classroom interaction and participation, identity, classroom context and teachers' supervision.

Tahaseena Syed is an English Language instructor in the Department of English- Ibri College of Applied Sciences, Ministry of Higher Education- Sultanate of Oman. She holds a Master's degree in English, Master's degree of Education and Post Graduate Diploma in English Language Teaching. She has been teaching English for EFL/ESL undergraduate and postgraduate university students for more than 10 Years. Her research interests include reading, academic writing, interaction between reading and writing and challenges in EFL education. She has also finished many professional development certifications from Cambridge and Alison Learning.

Mr. Younes Audeh is the head of the translation committee and a lecturer at the Department of English at Ibri College of Applied Sciences - the Sultanate of Oman. He is an M.A. holder in Applied Linguistics from Indiana University of Pennsylvania- USA. He has been teaching English as an ESL/EFL for a long time. He has taught at a number of colleges and universities in different countries: Jordan, Kingdom of Bahrain, the United Arab Emirates, and the Sultanate of Oman. His research interests are many, but mainly "academic writing".

Questionnaire

The purpose of this questionnaire is to collect information for an article titled: Schema Theory and Reading Comprehension at Ibri College of Applied Sciences- the Sultanate of Oman.

This information will only be used for the purpose of the research.

Thank you for your co-operation.

Please tick the write answer.

1. عندما يشرح المدرس المادة ويعطي مقدمة توضيحية ، فاني استوعبها اكثر

*نعم

*لا

1. When my teacher introduces a new lesson, activating my prior knowledge, using pictorials, I understand everything easily.
 - a. Yes
 - b. No

2. انني استوعب المادة اكثر حينما تكون مرتبطة باشياء اعرفها مثل الاشياء الشعبية والعادات والتقاليد المحلية

*نعم

*لا

2. I understand the topic well if it is familiar to me—about folklore, local habits, traditions and customs, etc.
 - a. Yes
 - b. No

3. اذا كانت المادة صعبة ولم يعطنا المدرس مقدمة لتبسيطها فاني لا استوعبها كليا، ولكنني احفظ تفاصيلها غيبا ودون استيعاب

*نعم

*لا

3. If the topic is sophisticated, and the teacher does not activate my schema, I do not understand it completely--- just learn the details by heart---parroting.
 - a. yes
 - b. No

4. اعتقد حتى يكون الاستيعاب كاملا للمادة، فيجب ان يكون هناك تفاعلا حقيقيا بين المادة وبين ما عندي من معلومات مسبقة عنها.

*نعم

*لا

4. I believe that to understand a reading passage, there should be an interactive process between the reader's prior knowledge and the text.

- a. Yes
- b. No

5. هل يحدث- احيانا- انك تقرأ مادة معينة ولم تستطع استيعابها على الاطلاق، ثم تستنتج بان ذلك يعود لعدم وجود معلومات مسبقه لديك عنها؟

*نعم

*لا

5. Does it happen, sometimes, that you do not understand a certain topic at all, and you admit that happens because you do not have the adequate schema?

- a. Yes
- b. No

6. يجب على المدرس الناجح ان يكون دقيقا حينما يختار نوع المادة لطلابها كالتمارين وغيرها لتتناسب مع قدراتهم و المعلومات التي لديهم مسبقا عنها.

*نعم

*لا

6. Dedicated teachers should be careful when choosing the type of material, exercises, puzzles, etc

they give to students and make sure they suit their academic level and related to their

Background Knowledge.

- a. Yes
- b. No

7. كلما كان لدينا معلومات اكثر عن العالم، كلما كان مخزوننا الثقافي اكثر

*نعم

*لا

7. The more we know about the world, the more prior knowledge storage we gain.

- a. Yes
- b. No

8. حينما يستخدم المدرس التكنولوجيا في التدريس، يستطيع الطلبة الاستيعاب اكثر وهذا بدوره ينمي ويزيد مخزونهم لتقافي للمادة المشروحة.

*نعم

*لا

8. When teachers utilize technology in classrooms (documentaries, films, etc.), students can remember things better, which means increasing prior knowledge about the fields they are exposed to.
- Yes
 - No

9. لو قام المدرس، أحيانا، بمنح الطلبة حرية اختيار الموضوع المراد التعامل معه، فهذا يمكن ان ينمي ويزيد ذخيرتهم الثقافية عن ذلك الموضوع بشكل اكثر.

*صح

*لا

9. If teachers, from time to time, give students the ultimate “freedom of choice” to choose their favorite topics. This, in turn, increases their schema.
- Agree
 - Disagree

10. لو سمح المدرس للطلبة بقراءة المادة بلغتهم (باللغة العربية)، فهل هذا يزيد من مخزونهم الثقافي عن تلك المادة؟

*ممکن

*غير ممکن

10. If teachers allow students to read some topics in their first language, will this help in accumulating the amount of prior knowledge they already have?
- Possible
 - Pot possible

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