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FROM ROTE LEARNING TO SCHEMA ACTIVATION:TRANSFORMING READING COMPREHENSION INSTRUCTION FOR GRADE 12th STUDENTS IN RURAL PAKISTAN

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Abstract
Rural students in Khyber Pakhtunkhwa, Pakistan, exhibit limited reading comprehension skills due to conventional rote learning approaches and a reliance on translation-based instruction. This quasi-experimental mixed-methods study examined the effectiveness of the content schema teaching strategy compared to the traditional Grammar Translation Method among 51 grade 12 pre-medical students (ages 18-21) at Government Higher Secondary School, Manyal, Dir Lower. Participants were non-randomly assigned to experimental and control groups, with data collected through pre-tests, post-tests, and semi-structured interviews using English textbook reading comprehension lessons. The experimental group received nine weeks of content schema activation activities, including prediction, semantic mapping, brainstorming, and discussion, while the control group continued with conventional teaching methods. Results demonstrated significant improvement in the experimental group's reading comprehension performance compared to the control group. Interview findings revealed an increase in student confidence and a deeper understanding of texts using schema activation strategies. The study concludes that content schema teaching strategy should replace traditional methods in reading comprehension instruction, as it promotes analytical thinking and meaningful text engagement among EFL learners.

Keywords: content schema, schema theory, reading comprehension, teaching method, EFL learners.

Introduction
The learning of English language skills has become imperative for students worldwide, especially in areas where English is the main language of instruction (Akram & Abdelrady, 2023, 2025). English has been recognized as the language of choice for worldwide communication due to the increasing demand for efficient communication on a global scale (Akram et al., 2020; Ahmed, Pathan, & Khan, 2017). For successful English language teaching and learning, researchers have focused on the effective integration of four skills: speaking, writing, listening, and reading. To assist students achieve the necessary requirements and improve their communication ability, these abilities should be developed and mastered (Nawaz et al., 2021, 2022; Sadiku, 2015). Among the four abilities involved in learning a foreign language, reading becomes the most important and crucial for students, particularly those in higher secondary schools or at intermediate level. Unfortunately, the way English has been taught over the last few decades has revealed that students struggle with reading comprehension in particular and are vulnerable to reading in general (Abdelrady & Akram, 2022; Satti et al. 2025).

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Schema theory offers an effective way to assist students to improve and develop their reading comprehension. Schema theory, specifically content schema, has had a major effect on reading comprehension, which is an interactive process requiring the execution of several mental processes at once. One of these behaviours and processes, according to Berhnardt (1991) and Brantmeier (2004), may be the activation of content schema, or previous knowledge. Multiple research investigations (Murray, 1980; Anderson, 1994) on the role of previous knowledge have proven its great influence on reading comprehension. These research studies have made it clear that understanding and implying the function of content schema plays in the reading process offers valuable insights into the reasons behind students' success or failure in understanding the written texts. The use of prior knowledge, content schema, and its activation in reading comprehension, as well as what strategies and activities to apply in the classroom to activate it, have not been extensively investigated, despite a greater number of studies on the prior knowledge on the reading skills of students (Johnson, 1981; Carrell and Eisterhold, 1983; Barnet, 1989). According to Chen (2003), who referenced August and Hakuta (1997), more research is required to determine how to improve reading comprehension instruction, particularly in EFL environments.

Abraham (2002) states that in order to effectively teach reading, teachers must assist students recollect the prior knowledge and background information they have about the topic, which activates the students' schema during the pre-reading stage. Carrell and Floyd (1987) opined that teachers must assist students in relating and connecting new information to their prior knowledge by supporting them and giving them the relevant schemata that they lack. In the same way, Al-Issa (2006) believes that reading instructors need to remember that each written material requires prior knowledge. Thus, reading instructors should offer students and readers the opportunity to use their prior knowledge through creative problem-solving and effective strategies (Anwar et al., 2025; Li & Akram, 2023, 2024; Ramzan et al., 2025, 2023). Therefore, in content schema teaching strategy, reading comprehension classes should adopt and practice pre-reading activities to activate preexisting knowledge, including pre-teaching of key vocabulary using semantic map, making predictions and previewing, asking questions and discussing the ideas and concepts.

Reading is carried out in Pakistani reading comprehension classes only for the teacher's benefits and gain. Students are reading to learn rather than learning to read. Instructors only offer translation to students; they do not engage them in any kind of practical activities using the same outdated Grammar Translation Method (Siddiqui, 2007). The aim of the current study is to enhance students' reading comprehension by employing a content schema teaching strategy. This study aims to investigate students' reading comprehension by engaging them in content schema activation activities and to explore how these activities impact their reading competence, using reading comprehension lessons from their English textbook as source materials (Shen et al., 2025).

This study was conducted at Government Higher Secondary School Manyal, Dir Lower, focusing on grade 12th students. This school was chosen because it is in the centre of Dir Lower, accessible from all parts of the village and serves students from different parts of the village/area(Shen et al., 2024). Most students at this school are from a middle-class background, having recently completed their secondary school studies in local schools. Due to their prior experiences, they often have low language skills and low proficiency in English (Siddiqui, 2007). Performing different content schema activation activities would provide them with the opportunity of reading comprehension from varied dimensions, as these activities provide students the opportunity to practice and experiment with the reading comprehension they have been taught, thus enhancing their confidence and improving their ability to comprehend as readers (Cameron, Nairn, and Higgins, 2009).

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The research objectives include examining students' overall academic performance in reading comprehension using the content schema teaching strategy and finding out if the reading comprehension skill of students is developed through the content schema teaching strategy(Riaz et al., 2025).The study examines how the content schema teaching strategy affects students' reading comprehension and to what extent It is more effective than the traditional teaching method (GTM) in teaching reading comprehension to grade 12 students (Zaib et al., 2023).

LITERATURE REVIEW

Reading Comprehension

A simultaneous process of obtaining, producing, and building meaning through participation and interaction with written language is known as reading comprehension. The term implies the three dimensions as the reader or decoder, the text or written language, and the activity. The characteristics and abilities of readers, the valued and accessible texts, and the ways in which readers interact with those texts (Snow 2002). Reading comprehension, according to Lenz (2005), is the method of gaining insight from the text. It suggests that the reader's capacity to associate and relate the meanings and purposes of the text to their prior knowledge and reading purpose is a necessary component of the reading comprehension process. The procedure then provides a meaning and comprehension of the material that the reader can understand. In Grabe (2009), Koda further argues that understanding happens when a reader collects and extracts various pieces of information taken from a text, relates and combines it with prior knowledge, and makes connections between the new information and previous learning. Furthermore, according to Carrel and Eisterhold (1983), understanding a text entails a combination of the text and the reader's past knowledge. To effectively comprehend a text or topic, one must be able to connect its content to prior knowledge. The aforementioned research suggests the reader's prior knowledge and experience play a crucial role in the comprehension process. According to Moreillon (2007), understanding the significance of background knowledge for comprehension is crucial because, before integrating and organizing new information, we make connections between it and our past knowledge. A theory of reading as a transaction including the reader, the text, and the author's intention was developed by (Rosenblatt and Moreillon 2007). Every reader, in her opinion, contributes their unique feelings, experiences, and prior knowledge to the text. She further argued that previous knowledge is what the reader contributes to the reading.

According to Tang Hongyan (2019), In English assessments, reading comprehension is extremely important. The traditional method of teaching English in high school, which emphasises the infusion of vocabulary and grammar, is crucial and challenging since it can cause students' enthusiasm in the subject to diminish (Ahmad et al., 2022; Amjad et al., 2021; Chen & Ramzan, 2024). As soon as possible, it is critical to identify an effective teaching strategy for high school students. Students' schema, usually referred to as their background knowledge, is essential to their understanding of the texts they read.

According to research, Ministry of Education of the People's Republic of China (2020) putting schema theory into practice helps students develop their critical thinking skills in addition to their linguistic skills. Students get experience analysing and comprehending complicated texts when they can make connections between new material and their preexisting schemas. This theory encourages a greater degree of understanding and active participation with the subject matter.

Schema theory has been shown to be relevant to psychopathology, namely personality disorder in younger people (Phillips, K., Brockman, R., Bailey, P. E., & Kneebone, I. I. 2020). Schema theory has proved useful in the field of education in developing techniques for the building,

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activation, and consolidation of schemas, which improves learning outcomes. (McVee et al., 2005; Wang & Chen, 2022).

Xia et al. (2022) investigated the use of schema theory in educational contexts and emphasised how it may improve memory, promote learning, and lessen knowledge forgetting. Liu Tingting (2023), says that in order to create a new teaching mode known as the Teaching Trilogy Mode, this study will combine cooperative learning and task-based learning. It will also investigate any potential issues and the effects of this mode on students' ability to read comprehension and develop critical thinking skills. Furthermore, the importance of linguistic, content, and formal schemas in various domains is shown by the applicability of schema theory to language instruction and translation (Lyu & Fang, 2023; Zhu, 2017). Hu, W. (2024) is of the opinion that applying schema theory helps students develop their critical thinking skills in addition to their linguistic capabilities. Students get experience analysing and comprehending complicated texts when they can make connections between new material and their preexisting schemas. Senior high school students' English reading comprehension has been substantially enhanced by the application of schema theory. The cognitive psychology paradigm known as schema theory highlights the importance of readers' past experiences and expertise in helping them understand new information.

Schema activation is widely acknowledged as the process by which certain textual cues, signals, and indications lead readers in the right direction or location so they may locate and bring up appropriate schema from memory for the current reading assignment or passage (Li & Cheng, 1997). Additionally, Carrell and Eisterhold (1988) contended that textual clues have a significant part in identifying and determining the schema. If a textual indication strongly suggests a certain schema, then an entire schema can be triggered and activated. The process via which readers access and apply their prior knowledge to the information in a text is known as schema activation (Vacca & Vacca, 2002). Schema activation thereby helps in students' comprehension, decoding, and recall of information. Schema activation also refers to a variety of methods, activities, and plans intended to awaken students' past knowledge and experience in relation to a text or lesson (Brunning and associates, 2004).

Reading comprehension may not be affected by readers' lack of suitable schema, but rather by their inability to activate it, (Carrel, 1983) and (Williams, 1987). Schema theory states that in order to increase understanding of the text or topic, reading requires schema activation prior to reading (Al-Jahwar & Al-Humaidi, 2015). Thus students may find a text unintelligible if they are unable to find and activate a schema that matches the content or passage (Anderson, 1994). Similarly, Pearson et al. (1979) asserted that integrating new information with pre-existing schemata is a necessary component of understanding. Marzano (2004) and Kendeou et al. (2003) emphasized the significance of schema presence and discovered that students perform poorly when there is no schema activation.

Schema Theory and Reading Comprehension

The schema theory explains the way the reader interprets written language by adding information, experience, prior knowledge, emotion, and background context (Brown, 2001). The idea behind schema theory in reading is that a text cannot convey meaning on its own. Schemata, previous information, knowledge, emotions, experiences, and existing knowledge are brought by readers, while reading a text or topic. As a result, readers consistently obtain more information than what is printed on the page. Because they read, readers comprehend what they read because they tend to take clues and hints to relevant concepts and ideas that are already ingrained in their minds, going beyond just the visual portrayal. In order to enhance readers' understanding, the reading process necessitates the identification of context, background, and topic. All of these factors activate schemata. Thus, a key component of reading comprehension is the schemata of previous experiences and prior knowledge.

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Adams and Collins (2011) discussed the purpose of schema theory in relation to reading comprehension. They argued that a text does not have meaning in and of itself; instead, readers must use the instructions and clues provided to reconstruct or retrieve meaning from their prior knowledge. They explained that the theory seeks to define the interface between the reader and the text, or how the reader's knowledge interacts with and shapes the information on the page and how that knowledge needs to be organized to facilitate the interaction. This assumes that comprehension occurs when readers are able to effectively connect what they have learned from the text with what they already know. If the new information does not match the readers' prior knowledge, it may be misinterpreted, and disregarded.

Under the umbrella of schema theory, readers' comprehension and interpretation of the text are identified and determined by activation of their schema (Zhao and Zhu, 2012). They further argued that occasionally, though, students' minds may not be sufficiently activated to build an appropriate schema by the information and clues presented in the texts. Teachers can assist and provide students the chance to activate prior schema and construct suitable and appropriate schema through various tasks and activities during the pre-reading stage when students fail to store the required schema. Pre-texting, pre-teaching, pre-discussion, brainstorming, and questioning are the simplest and most effective pre-reading activities.

Methodology

This study employed a mixed methods design that collects data using both quantitative and qualitative tools to explore how content schema affects 12th grade students' reading comprehension. In a mixed approach, the researcher simultaneously collects data using quantitative and qualitative approaches (Creswell, 2009). To fully comprehend the study problem, mixed methods research design seeks to address research questions from various perspectives within a single study (Creswell & Plano Clark, 2018). According to Kelle (2006), a mixed method research design is used to overcome validity issues that result from the application of a single methodology and to explore the breadth and depth of phenomena.

The study utilized a quasi-experimental approach focusing on how individuals' behavior and attitudes change before and after an intervention, though randomization is not employed in this process. A quasi-experiment assigns participants chosen by teachers, administrators, or themselves to treatment or control groups (White & Sabarwal, 2014). At Government Higher Secondary School Manyal, Dir Lower, two groups were selected through non-random sampling of two intact groups: an experimental group and a control group. The primary instruments employed include Writing Assessment Rubrics for Reading Comprehension, pre-test, post-test, and semi-structured interviews. Content schema activation strategies in the intervention include prediction, previewing, semantic mapping, anticipation guide, KWL, brainstorming, questioning, and discussion, applied to reading comprehension lessons from the grade 12th English textbook.

For quantitative data collection, pre-test, treatment, and post-test procedures were employed. Both groups were given a pre-test based on reading comprehension short questions from the lesson "Jahangir Khan, The Conqueror" before treatment. To maintain objectivity, the researcher used a basket method to randomly select this lesson from 13 available reading comprehension lessons in the textbook. All lessons are of the same level in terms of content, language, vocabulary, and difficulty. Every student from both groups performed this task individually, with identical questions for both groups.

The intervention lasted nine weeks, during which only the experimental group received content schema activation activities and strategies while learning reading comprehension lessons. Students were assigned tasks individually and put in groups of 6 or 7 for certain activities. The control group received routine traditional teaching using Grammar Translation

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Method (GTM). After completing all lessons, a post-test was administered to both groups using different short questions from the same lesson "Jahangir Khan, The Conqueror" to avoid rote memorization, though maintaining the same difficulty level.

Writing Assessment Rubrics for Reading Comprehension were adapted from Brown (2007) and Tariq (2016), comprising five comprehension competencies: inadequate, developing, proficient, skilled, and exceptional. These rubrics evaluated students' reading comprehension through their written answers, as reading comprehension can be assessed through writing (Taylor, 2013). Semi-structured interviews were conducted with twelve participants selected based on their scores (highest, medium, lowest) from both groups, with two respondents from each category per group, chosen according to their willingness to participate.

Data analysis involved paired t-tests to compare mean scores within groups and independent t-tests to analyze mean differences between groups. For the first research question examining how Content Schema Teaching strategy affects students' reading comprehension, pre-test and post-test quantitative data were analyzed using scoring rubrics, followed by paired and independent t-tests. For the second research question comparing Content Schema Teaching Strategy effectiveness with traditional GTM methods, similar statistical analyses were conducted alongside thematic analysis of interview transcripts to provide comprehensive and reliable responses. Permission was obtained from the school principal, and consent letters were issued to all participants prior to the commencement of data collection.

ANALYSIS AND DISCUSSION

To answer the first research question, students in the experimental and control groups took a pre-test and a post-test. Two different statistical procedures were used to assess and analyze the scores they had gained in the pre-test and post-test. An independent sample t-test was conducted for each of the two groups' mean scores, one for the pre-test and one for the post-test. The mean scores of the pre- and post-tests for each student group were also compared using a paired-sample t-test. According to the pre-test findings, the reading comprehension mean scores of the students statistically did not differ significantly ($p>.05$). According to the mean score results obtained from the post-test, EG students had significantly higher mean scores ($p<.05$). However, there was no discernible improvement in CG students' reading comprehension. Despite this, the students in the experimental group have improved their reading comprehension.

Results of the analysis of the participants' scores are presented along with comparing the experimental group's (EG) and the control group's (CG) pre-test and post-test mean scores. A total of fifty-one Pre-medical students were considered for this investigation. Based on the five bands and the corresponding scores assigned to each descriptor, the students' pre-test was scored using scoring rubrics. These rubrics were adapted from Brown (2007) and Tariq (2019).

Besides, different links were also examined and analyzed for the adaptation of rubrics including: https://www.scribd.com/document/504058632/ShortAnswer-,Rubric-English, https://studylib.net/doc/25516441/comprehension-critical-thinking-rubric#google_vignette, and https://studylib.net/doc/25611972/comprehension-critical-thinking-rubric.

The rubric comprises of five comprehension competencies that aim to assess the understanding in reading comprehension. These competencies include: a) inadequate .b) developing .c) proficient .d) skilled .e) exceptional. Several sources, such as links and research studies, have been adapted to make the scoring rubrics credible and reliable for the assessment of reading comprehension short answers. The researcher chose “Writing Assessment Rubrics for Reading Comprehension” as scoring rubrics because reading comprehension can be accessed through writing as rightly said by Taylor (2013); the majority of test taker answers

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are written, and tests are meant to evaluate readers' reading comprehension. Students of grade 12th are mostly preparing and reading solely for grades and marks in exam. They hardly read comprehension lessons and only focus on the reading comprehension lessons' short questions at the end of an every lesson. Mostly these short reading comprehension questions are part of the exam, due to which the researcher chose the reading comprehension questions to assess their reading comprehension as said by Taylor, (2013) that reading comprehension is assessed through different tasks, short answer questions, true/false, sentence completion, and matching. Hughes (2003) also argued that there are many techniques for evaluating students' reading comprehension, including short reading comprehension questions, multiple choices, true/false and so on.

4.1 Comparative Pre-test Results of Control Group andExperimental Group

Table 4.1 Comparison between the pre-test of control and pre-test of experimental group

Groups	N	Mean	Std. Deviation	Std. Error Mean	T	P
Pre-Test of Control Group Results	51	1.49	.579	.081	0.191	0.850
Pre-Test of Experimental Group Results	51	1.47	.578	.081		

Note. N=number of participants, p=sig (significance level), t=tailed

According to table 4.1, the pre-test mean score for the experimental group and the control group are similar. For each group, an independent sample t-test is applied. Every group has individuals who are different from one another. There is a comparison between the results of the two groups. The experimental group's mean value is 1.47, whereas the control group's mean value is 1.49. It implies that there was no difference and variation in the two groups' means scores. The experimental group's pre-test had a standard deviation of.578 whereas the control group's was.579. The t-value for each group is 0.191. The significant difference is indicated by the p-value, which is 0.850. P-value indicates the significance threshold at 0.05.The less is the difference the stronger or higher the p-value is. The significant difference and p-value are inversely correlated. A higher p-value indicates that no meaningful difference exists. Thus, in this case, the p-value indicates that there is no significant and discernible difference between the experimental group's post-test results and the control group's pre-test results. Their comprehension of reading is at the same level. The participants' performances demonstrate that both groups are homogenous and possess the same degree of reading comprehension.

4.2 Comparative Pre-test and Post-Test Results of Control Group

Table 4.2 Comparison between the pre-test and post-test of control group

Groups	N	Mean	Std. Deviation	Std. Error Mean	t	P
Pre-Test of Control Group Results	51	1.49	.579	.081	0.727	0.471

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Post –Test of Control Group Results	51	1.41	.536	.075		

Note. N=number of participants, p=sig (significance level), t=tailed

The pre-test and post-test findings for the control group are shown in table 4.2. A paired sample t-test is used for both groups since all of the participants are the same; the control group's post-test mean score is 1.41, whereas the pre-test mean score is 1.49. This demonstrates that the control group's pre- and post-test results do not change significantly. Likewise, the pre-test standard deviation is.579, but the post-test standard deviation is.536.The mean standard error of the pre-test is.081, whiles the mean standard error of the post-test is.075. There is a 0.727 t-value and a 0.471 p-value. P-value exceeds or greater than 0.05.This suggests that there was no significant difference between the control groups' pre-test and post-test results. The higher or bigger the p-value, the less is significant difference. This indicates that the control group's reading comprehension did not increase.

4.3 Comparative Pre-test and Post -test Results of Experimental Group

Table 4.3 Comparison between the pre-test and post test of experimental group

Groups	N	Mean	Std. Deviation	Std. Error Mean	T	P
Pre-Test of Experimental Group Results	51	1.47	.578	.081	-12.028	0.000
Post-Test of Experimental Group Results	51	2.80	.530	.074		

Note. N=number of participants, p=sig (significance level), t=tailed

In Table 4.3, the results of the paired sample t-test is presented. The same participants were compared at two different intervals prior to the intervention and following the intervention. Findings indicate that the experimental group's pre-test mean score was 1.47 and post-test mean score was 2.80. The table illustrates the variation (1.33) between the experimental group's pre- and post-test results. The results demonstrate and validate that implementing the content schema teaching strategy has improved students' reading comprehension. The post-test standard deviation is.539, whereas the pre-test standard deviation is.578. In the same way, the post-test standard error mean is.074 and the pre-test standard error mean is.081. The pre- and post-test t-values are -12.028. P-value at significance level of 0.05 is 0.000. A significant difference between the two groups is indicated by a lower p-value. The p-value in this case is smaller, indicating a more significant difference ($p<0.05$). This suggests that there is a significant difference between the experimental group's pre- and post-test results. This noteworthy difference reveals the positive effect of the content schema teaching strategy on students' reading comprehension. It has improved and developed the reading comprehension of the students.

4.4 Comparative Post-test Results of Control Group and Experimental Group

Groups	N	Mean	Std. Deviation	Std. Error Mean	T	P
Post-Test of	51	1.41	.536	.075	-12.802	0.000

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Control Group Results				
Post-Test of Experimental Group Results	51	2.80	.530	.074

Table 4.4 Comparison between the post-test of control group and post-test of experimental group

Note. N=number of participants, p=sig (significance level), t=tailed

In table 4.4 above, the results of the independent sample t-test is employed for both groups. Every participant was different from the others. Both the control groups and the experimental groups' post-test findings are shown. The experimental group's mean score is 2.80, whereas the control group's mean score is 1.41. This shows how the means of the two groups' scores differ from one another. Following the intervention or treatment, the experimental group did better. The experimental group's standard deviation is.530, whereas the control group's is.536. In the same way, the experimental group's standard errors mean is.074, but the control group's is.075. For both groups, the t value is -12.802. For both groups, the p-value at value 0.05 is 0.000. It indicates that there is a significant difference between the control groups and the experimental groups' post-test findings. This proves that intervention or treatment of content schema teaching strategy improved the reading comprehension of the students.

4.5 Discussion and Critical Analysis

4.5.1 Answer to Question One:

This section addresses research question one: *"How does content schema teaching strategy affect students' reading comprehension?"*

In response to the first research question, Students in the experimental and control groups performed pre-test and post-test. Two different statistical techniques were used to assess the students' pre-test and post-test results. Two independent sample t-tests, one for the pre-test and one for the post-test, were conducted to compare the mean scores between the two groups. To compare the students' mean scores from the pre- and post-tests within each group, a paired-sample t-test was also used. The pre-test results are indicative of that there is no statistically significant difference in the students' reading comprehension, ($p>.05$. However, there is a significant difference in the mean scores of the EG students on the post-test ($p<.05.$). Nevertheless, there was no significant change or difference in the CG students reading comprehension. Students' reading comprehension did, however, increase in the experimental group.

One possible explanation for the higher mean scores achieved by EG students is to the consequence of teaching through content schema teaching strategy which has different content schema activation strategies and activities like prediction, previewing, semantic mapping, anticipation guide, KWL, brainstorming, questioning, and discussion. In contrast, the lower mean scores of CG students indicative of an absence in content schema teaching strategy.

Students in the GTM classroom, that employs a teacher-centered approach, are primarily dependent on memorization of textbook material and rote learning, along with short questions at the end of reading comprehension lessons as well as translations from English to Urdu. The questions and answers they had memorized for the exam were to be repeated and copied by them. The focus is on the product's linguistic and grammatical accuracy, translation and grammar rather than how to understand and comprehend a reading comprehension lesson. Furthermore, students don't seem interested in activities; hence they do not participate in any kind productive and useful activities. The traditional approach to teaching and learning reading

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comprehension does not assist students in determining to interpret and understand a text or lesson.

To critically analyze, Students might not have the chance to develop an understanding of a reading or learn how to find out more about the topic if reading comprehension is taught using the conventional approach, GTM. Reading comprehension demands brainstorming or generation of concepts and ideas, prediction, questioning, discussion, semantic mapping and anticipate guide etc which are essential for the content schema activation and that are required and needed to understand a reading comprehension lesson. Hence, the findings of the post-test indicate a statistically significant difference between the experimental group and the control group. Participants in the experimental group performed better than the control group on the post-test. Students' reading comprehension improved with the use of the content schema teaching strategy. In short, the results have proven and confirmed the efficacy of the CST strategy in improving students' reading comprehension.

4.5.2 Answer to Question Two:

To answer research question two, " *To what extent does Content Schema Teaching Strategy more effective than traditional teaching method (GTM) in the teaching of reading comprehension to the grade 12th students?"*

To answer research question two, a pre-test and a post-test were given to students in the experimental and control groups. Two different statistical techniques were used to examine the scores they gained on the pre-test and post-test. For comparison of the mean scores between the two groups, two independent sample t-tests were conducted: one for the pre-test and one for the post-test. Additionally, the mean scores of the pre-test and post-test for the students in each group were compared using a paired-sample t-test. Regarding reading comprehension, the pre-test results show that there was no statistically significant difference between students $p>.05$. On the other hand the post-test mean score results indicate that EG students significantly improved their mean scores, with $p<.05$. However, reading comprehension did not significantly increase for CG students. Students in the experimental group did, to a larger extent, improve their reading comprehension.

In a critical way, it is proved to attribute the higher mean scores achieved by EG students to the use of the CST teaching strategy. According to CST strategy, students' background knowledge should be activated so as to promote and improve reading comprehension an effective text.Besides, GTM only demands correct grammatical structure, and mere translation along with memorization of read-made questions and answers. On the other hand, CG students' lower mean scores were indicative of a lack of content schema activation activities. Students in GTM, a teacher-centered approach classroom, are expected to memorize what they are taught prescribed in the textbook and mostly rely on rote learning. In order to pass the examination, students had to reproduce the material they had memorized. Focus and emphasis are placed on the grammatically accurate product and output instead of understanding of the lesson/text. Also, there are no beneficial and useful activities that students are participating in. In traditional teaching method of teaching which values students in typical classroom settings won't be given the chance and opportunity to understand reading comprehension through brainstorming, ideas and concept generation. The content schema teaching approach provides enough of opportunities for students to participate in a range of tasks and activities. Engaging in such activities motivates students and increases their enthusiasm in the learning process. Under such circumstances, students feel more motivated, comfortable, and self-assured to engage in a variety of activities. This study revealed that the content schema teaching strategy came up proved very successful, as a result the students' reading comprehension improved to a larger extent. Hence, in this research study, content Schema teaching strategy is effective in teaching of reading comprehension at grade 12th.

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Comparing the two groups in the current study, Students taught using the CST strategy performed better than students taught adopting the teacher-centered GTM approach. This increase in terms of the scores obtained may be related to various activities carried out to activate prior knowledge about a topic or lesson. Students are helped and guided by this method to get clear understanding of reading comprehension lessons. Reading comprehension was not developed or improved upon by students using the conventional method of teaching, in the light of the findings of the pre-test and post-test of the CG using CST strategy. To compare the findings of this study with those of Barbara and Mccombs' (1997) investigation of 600 high schools and universities' pre- and post-course test scores. Student participants' learning was shown to have significantly improved when compared to classrooms where interactive, cooperative, collaborative, and productive activities were not included. The reason for this phenomenon can be the lack of content schema activation strategies and activities.

This section attempts to address research question two through the data gathered from interview. Results of the findings of students' perceptions and experiences on the efficacy of the content schema teaching strategy based on their interview responses from the control group and the experimental group, developing the understanding of reading comprehension lessons the following overviews could be deducted. The EG students performed different schema activation activities based on their reading comprehension lessons and made some understanding of reading a lesson as most of them expressed that they could comprehend a lesson. Several schema activation activities in the classroom and explicit instruction in reading comprehension were credited by them for this development. Furthermore, they developed the capacity to read a lesson, as they had before hardly read at all and had no concept how to read and comprehend a lesson. They contend that even though they had previously taught these lessons, it didn't help them since they had only been taught grammar and English to Urdu translation using GTM. Instead, they felt that this study had exposed them to a variety of activities. However, a number of students in the control group claimed to have gained some knowledge about different reading comprehension activities. Their claims about their understanding of the lessons are limited to translation, already prepared materials, and linguistically accurate output as they could hardly read and translate it.

Some believed that being aware of different schema activation activities results in improvement of reading comprehension and reading is not a translation only rather comprised of understanding and comprehending as well. For example, understanding a lesson essence or content is important to know about it, rather to translate it and memorize it. However, they made understanding of reading comprehension lessons. A few of the CG students argued that teaching reading comprehension using the CST strategy is beneficial to using the GTM approach since it provides students with a lot of knowledge and information about the topic or lesson , for students to follow, The (CG Students) further elaborated that the statement that reproducing the same answers and plagiarism found in the students' answers suggests that the students gained some knowledge of the CST approach and insight into reading comprehension instruction.

To address the second question of the current study, it was found that content schema teaching strategy remained effective in classroom to a larger extent, because of its dynamic and versatile nature. For the context of Khyber Pakhtunkhwa, content Schema teaching strategy is effective teaching strategy on behalf of the aforementioned reasons. This is evident and proved from this study that content schema teaching strategy students performed better in the reading comprehension test than the other students taught through GTM, traditional method.

To sum up, the results and findings of the research reveals enough difference between the content schema teaching strategy and GTM, a traditional method. Content schema teaching strategy remained effective and useful to a larger extent for teaching reading comprehension.

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Moreover, content schema teaching strategy gives equal value to reading comprehension. Whereas GTM, a traditional method moves around on the mere translation of sentences and paragraphs rather than its understanding and context. Students may, in fact, develop and improve their reading comprehension in the same classroom where they get traditional instruction by using GTM. This research investigation has provided proof of it. It was found that content schema teaching strategy is effective to a larger extent than a traditional method of teaching reading comprehension, GTM.

Conclusion

As proposed in this study, this research attempted to address the issue of how to improve students' reading comprehension at the 12th grade level, as suggested. This study aimed to use the content schema teaching strategy to the teaching and learning of reading comprehension based on the literature relevant to reading of teaching. Based on the results obtained in the research study, this study recommends using this method to teach and develop reading comprehension at the intermediate level, or grade 12. This would allow and enable the students to approach reading comprehension from schema strategy in order to understand readings. As the result of content schema during the reading comprehension that students gradually develop their ability to comprehend a reading over time. Besides, they also know that understanding and improving reading comprehension lessons need the application of content schema teaching strategy.

Reading comprehension classrooms should implement the content schema teaching method in light of the findings and outcomes from the data collected during the interview as well as the pre- and post-tests administered throughout the intervention. The results of the study show that the traditional technique used in the present teaching methodology restricts students' capacity to think beyond memorization of certain concepts and questions from their textbooks. The findings made it clear that students using GTM, a conventional method, lacked sufficient understanding and comprehension skills. It comes to the conclusion that the conventional technique restricts students' understanding since it focuses more emphasis on memorization, translation, and linguistically acceptable forms and structures than it does on the cognitive process of reading comprehension. Comparably, implementing the content schema technique in reading comprehension classes would provide students with several opportunities to try out different ways of expressing themselves and would also aid in their awareness of understanding a lesson. Furthermore, as they were on the verge of reaching a higher level in their academic lives, this method will enable them to understand any readings at a greater level in the future. After completing their intermediate studies, they would enter their higher education, when knowledge and understanding will be crucial to their success.

According to the conclusions drawn from the quantitative data, reading comprehension is significantly improved by activating content schema. Additionally, it is anticipated and expected that the study's conclusions will provide teachers and students with new insights on reading comprehension and the problems associated with its teaching. Furthermore, it is expected that the insights from this research would assist practitioners and educationists in conceptualizing of the teaching practices of reading comprehension.

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