An Analytical Study of a Sample of Arab Research and Studies on the Use of the Metacognitive Strategy S.Q.3.R

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Abstract

The present study relies on the descriptive-analytical approach to analyze a number of Arab studies published between 2016 and 2023, employing statistical indicators to examine the metacognitive strategy. A purposive sample of studies was selected based on specific scientific criteria in order to apply the extracted indicators using statistical tools. The researcher examined 45 studies, including doctoral and master's theses as well as scientific articles that align with the questions raised in the study.
Keywords: Metacognitive strategy, Reading.

1.Introduction

Among the difficulties experienced by students in their studies especially in the early years is what is known as reading difficulty, where many learners face problems in controlling the reading of letters, sentences, or texts alike. Consequently, specialists have sought to find ways to alleviate or reduce this difficulty. Several strategies have therefore been adopted, many of which have demonstrated positive outcomes in correcting pronunciation and reading.

Among these strategies is the S.Q.3.R learning strategy, which is considered one of the modern and effective approaches to teaching reading and understanding information. Its name is derived from the initials of its steps: Survey, Question, Read, Recite, and Review (Al-Qahtani, 2012, p. 85).

"Shad" points out that this strategy often contributes to increasing students' interaction with academic materials, which leads to improved academic performance and outcomes. It is also regarded as a means of preparing students to face academic challenges by developing their research and comprehension skills (Shad, 2015, p. 22).

The strategy is seen as an organized method aimed at enhancing reading and comprehension skills. It helps learners deal with information more effectively through analysis and critical thinking, enabling them to retain information more efficiently (Stelly, 2010, p. 45). Likewise, Coleman emphasizes that this strategy enhances students' ability to understand complex texts through interaction with the content such as questioning and reviewing which increases the learner's capacity to retain information in long-term memory (Coleman, 2018, p. 212).

2.Problem Statement

In light of the numerous challenges facing educational systems, particularly in the present era characterized by rapid technological changes that have penetrated the world of education at all its levels, there has emerged a growing need to adopt innovative teaching strategies that develop students' skills in comprehension and analysis.

In this context, the SQ3R strategy has emerged as one of the most prominent strategies proven to enhance students' ability to understand and interact with educational materials within the classroom. However, it remains unclear to what extent this strategy contributes to achieving the objectives of modern educational systems, particularly in light of the ongoing transition toward digital education.

Abdullah Salem (2017) argues that this tool is an excellent means of improving students' reading comprehension. Nevertheless, its practical implementation requires better integration with modern technologies and digital learning applications in order to achieve a sustainable impact on the educational system. In this regard, he proposes introducing modifications to this strategy so that it aligns with the requirements of education in the digital age (Salem, 2017, p. 45).

Similarly, Nawal Hamdi (2016) notes that this strategy promotes self-learning and contributes to achieving the objectives of educational systems that focus on developing students' critical skills. However, she stresses the need for further research to determine its impact across diverse educational contexts (Hamdi, 2016, p. 78).

In the same vein, Mark Coleman (2018) emphasizes that the strategy significantly contributes to improving deep comprehension of texts. He indicates that empowering this strategy and integrating it with active learning approaches could support the promotion of effective education (Coleman, 2018, p. 112).

Furthermore, Jawdat Shad (2015) suggests that applying this strategy in schools particularly at the primary education level helps students acquire essential reading comprehension skills from an early age, thereby contributing to building a strong foundation for future learning (Shad, 2015, p. 22).

Mohammed Abdel Ghani (2019) also believes that this strategy enhances students' abilities in critical thinking and text analysis, although he argues that its success largely depends on training learners to use it effectively (Abdel Ghani, 2019, p. 110).

On the other hand, Sarah Mahmoud Taher (2014) confirms that the strategy is an effective tool for improving reading comprehension among groups of students. However, she warns against its direct application in higher education, as this may require adapting it to suit the complexity of academic materials (Taher, 2014, p. 135).

Based on the above, the present study is guided by the following main question:

What are the different types of studies that have addressed the use of the S.Q.3.R strategy?

This main question gives rise to the following sub-questions:

What are the target groups addressed in these studies?

What research methodologies were employed in these studies?

What are the most important variables and factors that were examined?

What are the general indicators derived from the results of these studies?

3.Study Objectives

The objectives of this study revolve around analyzing the scientific research material represented in a set of doctoral dissertations, master's theses, scientific articles, and research papers. These objectives can be summarized as follows:

Identifying the types of studies that have addressed the use of this strategy.

Identifying the main target groups addressed in these studies.

Determining the key variables that have been examined.

Extracting the most important general indicators derived from the results of these studies.

4.Significance of the Study

The SQ3R strategy is considered one of the effective strategies aimed at improving reading comprehension skills and active learning among students. Through an analytical study of this strategy, it becomes possible to evaluate its impact and significance in improving the educational process and developing students' cognitive abilities.

The importance of this study lies in the scientific benefits derived from applying this strategy in various educational environments. It also contributes to identifying the best ways to adapt it to contemporary curricula, thereby enhancing the effectiveness of learning and addressing the challenges that may face the educational process.

The significance of the study can be summarized in the following points:

Evaluating the effectiveness of the strategy:

The analytical study enables the examination of the effectiveness of the strategy in improving students' levels of reading comprehension and understanding across different educational stages.

Identifying appropriate areas of application:

The study helps determine the educational environments or academic subjects in which the strategy is most effective, allowing educators to direct its use more appropriately.

Improving teaching methods:

By applying this strategy in schools, some proposals can be presented to improve teaching and reading methods in educational institutions based on students' performance results.

Measuring its impact on cognitive skills:

The study aims to measure the extent to which the use of this strategy contributes to developing students' critical thinking and analytical skills, in addition to surface-level text comprehension.

Addressing educational challenges:

The analytical study helps highlight the challenges or obstacles that teachers face when implementing the strategy, which enables the development of effective solutions.

Providing a developmental framework:

The strategy contributes to the development of other educational tools based on learning outcomes, which helps in designing new learning strategies that correspond to the needs of the educational system.

5.Study Limits

The limits of this analytical study on the S.Q.3.R strategy revolve around several key aspects. The study focuses on a limited sample of previous research and studies conducted during the period from 2016 to 2023, including a collection of doctoral dissertations, master's theses, research papers, and scientific articles.

6.Theoretical Framework of the Study

6.1Definition of the Metacognitive Strategy

Sami Mohammed Malham (2002) defined the metacognitive method as a process that involves surveying, questioning, reading, recalling, and reviewing, considering it a strategy aimed at enhancing comprehension and memory when reading texts. It relies on five fundamental steps (Malham, 2002, p. 123).

The strategy is also defined as an integrated approach consisting of organized steps that enhance individuals' ability to comprehend and retain information, thereby facilitating the process of academic learning (Al-Kilani, 2016, p. 60).

6.2 Steps of the Metacognitive Strategy

Survey Stage:

At this stage, the reader scans the text quickly in order to obtain a general idea about the topic. This includes examining the main and subheadings, which helps identify the main points and focus on the important aspects of the text.

Questioning Stage:

This involves transforming the main headings into questions. For example, if the title is "Types of Plants," one might ask: What are the different types of plants? Such questions guide and focus the reader during reading, thereby increasing the effectiveness of comprehension.

Reading Stage:

The reader studies the text carefully in an attempt to answer the questions raised in the previous step, ensuring careful reading of the paragraphs and extracting the essential information and main ideas of the text.

Recitation Stage:

After reading a particular section, the reader pauses and attempts to recall the information and answer the questions aloud or in writing. This helps consolidate information in memory and makes it easier to recall the content later.

Review Stage:

After completing the reading process, the reader reviews the entire text and repeats the recitation process to ensure a full understanding of all points

6.3Advantages of Metacognitive Strategies

Metacognitive strategies are considered an effective technique for improving reading and comprehension among students, particularly in academic contexts. Their advantages include the following:

Organization:

The strategy helps organize acquired information and facilitates its later retrieval, which enhances effective memory.

Active Interaction:

The strategy encourages active engagement with the studied text, which increases students' levels of attention and comprehension.

Improved Understanding:

The strategy helps achieve a deeper understanding of the content, as it encourages students to ask questions and search for answers.

Development of Reading Skills:

It enhances comprehensive reading skills through the use of multiple strategies such as active reading and summarization.

Increased Effectiveness:

The strategy is considered an effective reading method, as it allows the student reader to extract the most important information quickly.

Flexibility:

It can be applied to a wide range of materials, including books, articles, and notes.

Memory Enhancement:

The strategy helps maintain the reader's focus during the reading process, thereby reducing distraction.

Time Saving:

By improving text comprehension, this strategy can help reduce the time spent studying.

In summary, this strategy enhances the effectiveness of reading and contributes to a deeper understanding of content (Al-Arfaj, 2008, p. 120).

6.4Importance of the Strategy

First: The Importance of the Strategy for the Teacher

Improving teaching effectiveness:

The strategy helps teachers design more organized lessons, which facilitates students' comprehension and understanding of the content.

Encouraging critical thinking:

By promoting questioning, teachers can motivate students to think critically and search for answers rather than accepting information superficially.

Facilitating the assessment of comprehension:

Teachers can use questioning and reviewing as tools to evaluate students' levels of understanding and identify strengths and weaknesses.

Saving instructional time:

Through the organization of information, teachers can reduce the time spent explaining and increase the time devoted to discussion and review.

Second: The Importance of the Strategy for the Learner

Improving comprehension and information retention:

The strategy helps students understand information more deeply, thereby increasing their ability to recall it later.

Developing research and inquiry skills:

Through its different stages, students learn how to formulate questions and search for answers effectively.

Increasing motivation:

When students realize that they possess effective tools for understanding content, they become more motivated to participate in learning.

Promoting self-learning:

The strategy helps students develop their own study strategies, enabling them to learn more independently.

7.Study Procedures

7.1Research Methodology

The descriptive–analytical approach was employed in this study in order to analyze the contents of scientific research and studies, as it is considered the most appropriate method for such research. According to Al-Kilani and Al-Sharifin (2016), the content analysis method relies on analyzing documents and similar materials. Its advantages lie in collecting useful information that helps reveal trends, diagnose shortcomings, verify relationships, and investigate differences between what currently exists and what is expected in various fields (Al-Kilani & Al-Sharifin, 2016, p. 28).

Content analysis is also regarded as a research method applied to written or visual materials with the aim of identifying specific characteristics of the material under study (Al-Husseini, 2013, p. 259).

7.2Study Sample

The research sample consisted of 37 studies, including doctoral dissertations, master's theses, peer-reviewed scientific research papers, and conference presentations. The focus was placed on a number of Arab studies published between 2016 and 2023.

7.3Statistical Methods

The present study employed the following statistical methods:

Frequencies and percentages

Graphs and charts

8.Analysis and Discussion of the Study Results

8.1Analysis and Discussion of the First Research Question

The first research question states:

What types of studies have addressed the metacognitive strategy?

To answer this question, frequencies and percentages of the studies were calculated according to their type. The results are illustrated in the following charts:

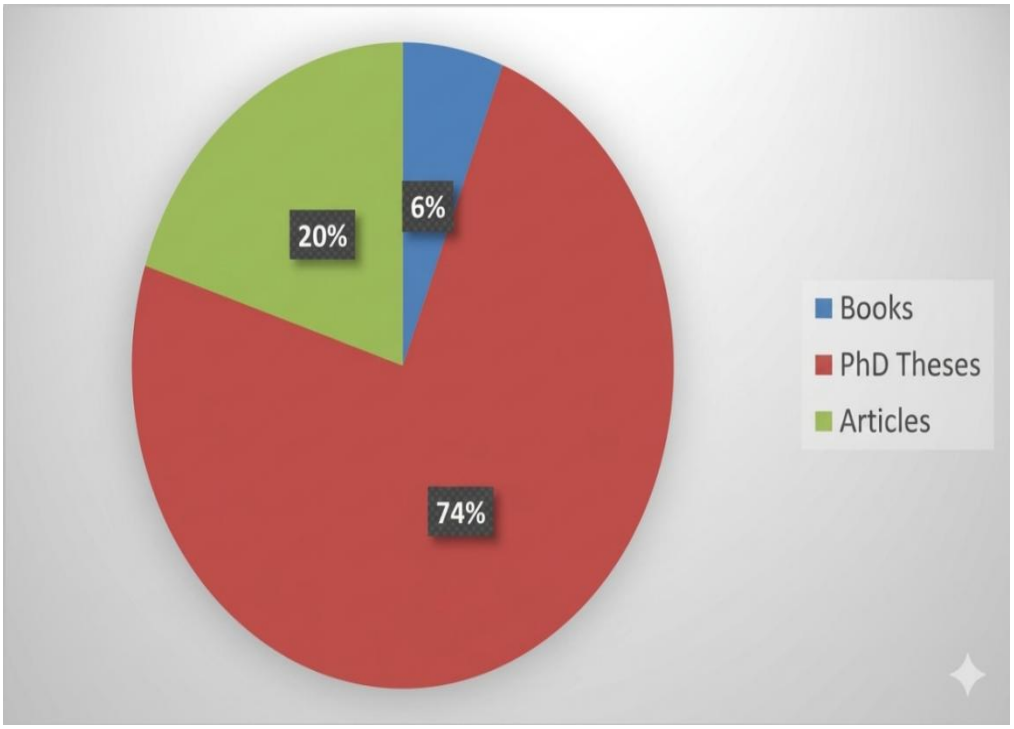

Figure 01: Types of studies addressing the metacognitive strategy.

Based on Figure (01), which illustrates the types of studies addressing the metacognitive strategy, it can be observed that the largest proportion of studies consisted of doctoral dissertations, representing 74% of the total studies. This reflects the considerable academic interest in this strategy at the graduate studies level, particularly in educational and psychological research.

Scientific articles accounted for 20%, indicating a notable level of scholarly attention within specialized academic journals that have addressed the topic from multiple perspectives, whether theoretical or applied.

As for books, they represented only 6%, which is the lowest proportion. This suggests that studies on the metacognitive strategy are still primarily addressed within academic research and dissertations rather than in independent authored books.

Overall, the figure indicates that research interest in the metacognitive strategy is concentrated mainly in specialized academic research (doctoral and master's studies). This confirms the relative novelty of the topic and its continued development within the scientific and research framework, rather than within the broader theoretical or authorial domain.

8.2Analysis and Discussion of the Second Research Question

The second research question states:

What are the target groups addressed in these studies?

To answer this question, frequencies and percentages of the studies were calculated according to the targeted groups. The results are illustrated in the following charts:

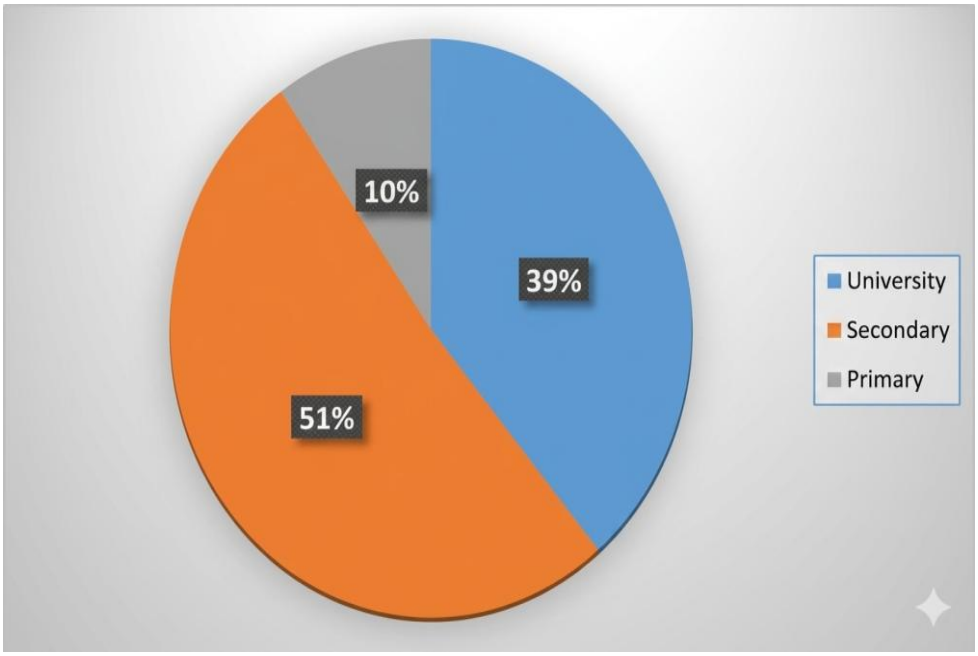

Figure 02: Distribution of target groups in research on the metacognitive strategy.

Based on Figure (02), which illustrates the distribution of target groups in research on the metacognitive strategy, the results indicate that the largest proportion of studies focused on the secondary education level, representing 51%. This suggests that researchers have concentrated their attention on this stage, which is considered a transitional and crucial phase in the learner's educational trajectory. At this stage, learners require higher levels of comprehension, analysis, and understanding, which makes the application of metacognitive strategies highly effective in improving academic achievement and reading comprehension.

The university level accounted for 39%, which is also a significant proportion, indicating an increasing interest in employing this strategy in higher education, particularly in the context of developing critical thinking and self-learning skills among university students.

Meanwhile, the primary education level represented only 10%, which is the lowest proportion. This suggests that the application of metacognitive strategies at this stage remains limited, possibly due to the difficulty of adapting its steps to the cognitive abilities of younger learners or a lack of awareness regarding its importance in the early stages of education.

In general, the figure highlights that research interest in the metacognitive strategy is concentrated mainly in secondary and higher education, reflecting researchers' awareness of the importance of this strategy in developing higher-order thinking skills and independent learning at advanced stages of education.

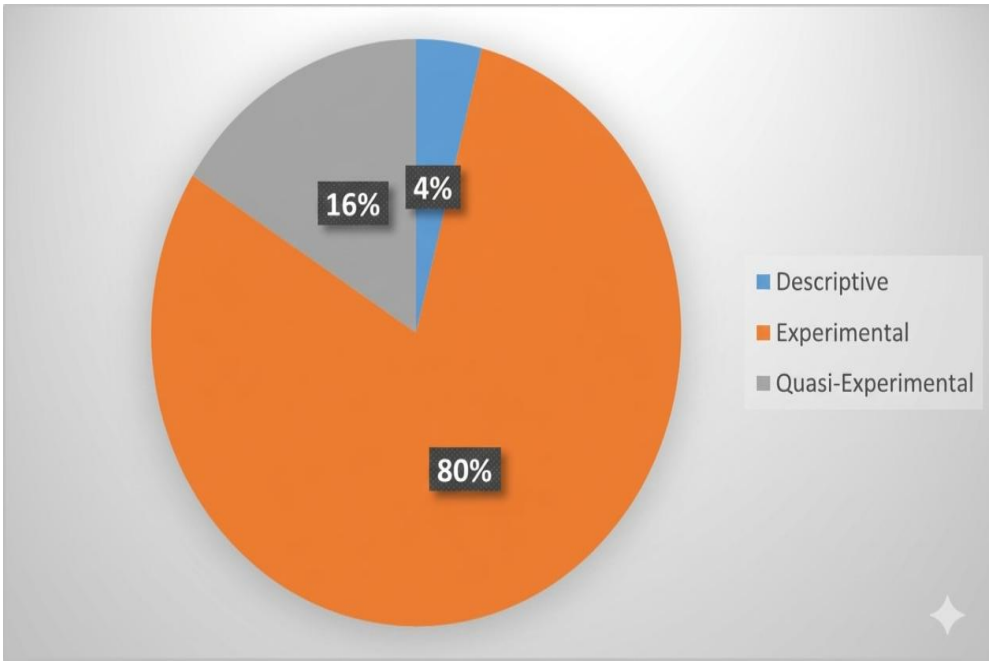

Figure 03: Distribution of Research Methodologies Used in Studies on the Metacognitive Strategy

From Figure (03), it can be observed that the distribution of research methodologies used in studies related to the metacognitive strategy clearly leans toward the experimental method, which represents 80% of the total methodologies used. This high proportion reflects the central role of the experimental method in studying educational phenomena related to higher-order thinking skills, such as metacognitive strategies. This is mainly due to its ability to measure the effects of variables, control influencing factors, and produce accurate results that can be generalized to larger samples.

In second place comes the quasi-experimental method, representing 16%. This method is often used when the conditions required for a true experiment are not fully available, such as the inability to control all variables or randomly assign participants. This suggests that a considerable portion of the research deals with real field conditions within educational institutions, which leads researchers to adopt quasi-experimental designs that maintain a minimum level of scientific control.

As for the descriptive method, it represents only 4%, which is a relatively small proportion. This indicates that researchers in the field of metacognitive strategies tend to prefer experimental approaches rather than relying solely on descriptive and theoretical analysis. The limited use of the descriptive method suggests that this field is moving toward applied scientific approaches aimed at testing the effectiveness of educational interventions rather than merely describing the phenomenon.

In the same context, the figure shows that studies on the metacognitive strategy rely primarily on experimental methodologies to a large extent within the studies examined here. This indicates a strong interest in scientifically verifying the effectiveness of this strategy in improving learning and developing thinking skills. The presence of the quasi-experimental method also reflects the nature of the educational environment, which may make it difficult to

conduct fully controlled experiments, while the low proportion of descriptive studies indicates a decline in reliance on purely theoretical approaches in favor of application-oriented experimental methods.

Conclusion

The results derived from the general indicators extracted from the collected research and studies, including graduation theses and scientific articles that measured the impact of using metacognitive strategies in teaching methods, indicate that this method is still relatively recent in its application, despite its growing adoption in several Arab countries.

Through this study, we aim to encourage specialists in education in Algeria to promote the teaching of sciences in Algerian schools by adopting this strategy as a teaching approach that is consistent with the assumptions of constructivist theory, which is based on meaningful learning centered on understanding.

This approach is particularly important in an era characterized by rapidly accelerating scientific and technological transformations, which requires equipping students with the concepts and knowledge necessary to understand and manage contemporary changes. This can be achieved by facilitating learning processes and helping students understand the structural framework of knowledge and the relationships between its concepts.

Recommendations

In light of the results obtained from the current study, the following recommendations can be proposed:

Directing specialists responsible for curriculum development in Algerian schools to incorporate modern strategies, particularly metacognitive strategies, into school curricula as one of the effective instructional approaches.

Organizing seminars and training workshops for both permanent teachers and newly recruited teachers on how to effectively implement metacognitive strategies in teaching.

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