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Developing EFL Students' Metacognition by Using Question – Answer Relationship (QAR) Strategy

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A B S T R A C T

Language is at the heart of human life, serving as a conduit for the exchange of ideas, interactions, and the formation of social and individual identities. Reading is one of the most critical language skills to teach. It is a fluent process in which a person combines information from a text with their own prior knowledge to create meaning. Developing metacognitive processes is a crucial subject and it is highly beneficial to language learning. The current study aims at demonstrating the effect of Question-Answer Relationships (QAR) strategy in developing students' metacognition with regard to reading comprehension.This study mainly aims at finding out:

1.The degree to which the students' metacognitive abilities in relation to their linguistic repertoire have developed.

2. The extent to which EFL students have developed their metacognitive skills through reading comprehension by using question-answer relationship (QAR).

These requirements were achieved by confirming the following hypothesis:

1. There is no statistically significant difference between the mean scores of the experimental group's achievement and that of the control group in the posttest applying question-answer relationship (QAR) on the reading comprehension.

To verify the hypothesis of the study, a sample of 50 students have been randomly selected from the fifth preparatory grade at Al Dour Preparatory School for Boys .The sample was split into two groups: one for the experiment and the other for the control. Both of these groups are comparable in terms of their previous year's English language scores, age, and parent's educational level. The researcher used an achievement test is constructed and applied to asses evaluate the students' success in the study's dependent variable. The study lasted ten weeks. Results of this study revealed that there was a statistically significant difference between the mean scores of the EG and that of the CG in the reading comprehension achievement post test ,i.e. the scores of the students in reading comprehension in the EG was significantly higher in average than that of the students in the CG on the post test . As a result, the current study's findings verified the importance of Question Answer Relationship (QAR) in improving students' metacognition with regard to reading comprehension skills. Finally, the study ended with some conclusions and recommendations.

تعزيز التنمية الشاملة والتباين من خلال التحقيق في مجموعة واسعة من الثقافات العالمية

ا.د.نغم قدوري يحيى

مؤيد يحيى كريم

الخلاصة:

تمثل اللغة جزءا جوهريا في حياة الإنسان ، حيث تعمل كوسيط لتبادل الأفكار والتعايش وتشكيل الهويات الاجتماعية والفردية. والقراءة هي واحدة من أهم المهارات اللغوية في مجال التعليم. واللغة هي عملية عفوية يربط فيها الفرد المعلومات من نص ما مع معرفته السابقة للوصول للمعنى المنشود من ذلك النص. يعد تطوير العمليات الإدراكية العليا (الميتامعرفية) موضوعًا مهمًا للغاية لتعلم اللغات. تهدف الدراسة إلى بيان أثر استخدام إستراتيجية "العلاقة بين السؤال بالجواب(QAR) " في تطوير العمليات الإدراكية العليا بما يتعلق بالقراءة الاستيعابية.

تهدف الدراسة إلى:

١. مدى تطور القدرات الإدراكية العليا للطلبة فيما يتعلق بمخزونهم اللغوي.

٢. بيان أثر علاقة إستراتيجية السؤال بالجواب (QAR)على الطلبة العراقيين الذين يدرسون اللغة الإنجليزية لغة أجنبية في القراءة الاستيعابية للصف الخامس الإعدادي.

وقد تحققت هذه المتطلبات بتأكيد الفرضية التالية:

١. لا توجد فروق ذات دلالة إحصائية بين متوسط درجات تحصيل المجموعة التجريبية ومتوسط درجات تحصيل المجموعة الضابطة في الاختبار ألبعدي بعد تطبيق إستراتيجية "العلاقة بين السؤال بالجواب(QAR) ".

للتحقق من فرضية الدراسة ، تم اختيار عينة عشوائية قوامها ٥٠ طالبًا من الصف الخامس الإعدادي في إعدادية الدور للبنين ، وتم تقسيم العينة إلى مجموعتين: مجموعة تجريبية ومجموعة ضابطة. كلتا المجموعتين قد قورنتا من حيث درجات اللغة الإنجليزية في العام السابق ، والعمر ، والمستوى التعليمي للوالدين. استخدم الباحث اختباراً تحصيلياً لتقييم نجاح الطلبة في المتغير التابع للدراسة حيث أن الدراسة كانت قد استمرت لعشرة أسابيع.

أوضحت نتائج هذه الدراسة وجود فروق ذات دلالة إحصائية بين متوسط درجات التحصيل للمجموعة التجريبية ومتوسط درجات التحصيل للمجموعة الضابطة في الاختبار ألبعدي للتحصيل والفهم ، بحيث كانت درجات الطلبة في القراءة الاستيعابية في المجموعة التجريبية أعلى بكثير مما عليه الحال في متوسط من طلبة المجموعة الضابطة في الاختبار ألبعدي . ونتيجة لذلك ، أثبتت نتائج الدراسة الحالية أهمية تطبيق إستراتيجية علاقة السؤال بالجواب (QAR) في رفع مستوى تحصيل الطلبة في الصف الخامس الإعدادي ، مما يعني أن استخدام إستراتيجية علاقة السؤال بالجواب له تأثير كبير في تطوير القدرات الإدراكية العليا أكثر من الطريقة التقليدية. قدمت الدراسة مجموعة من التوصيات كما تم تقديم

Section One

1.1 Statement of the Problem

Language learning is an active process that begins at birth and continues throughout life. Students learn language as they use it to communicate their thoughts, feelings, and experiences, establish relationships with family members and friends, and strive to make sense and order of their world. However, language learning specialists developed methods and programmes based on diversity of theories which not only teach language but also a variety of subject 'content' related to language such as literature, culture, history and politics.

Saeed (2015:89) and Amin (2017:280) both highlighted the major challenges of teaching English in Iraq. To deliver the expected content, teachers must occasionally learn and cope with new methods and techniques. Students are uninterested in the classroom teaching process, especially when it comes to teaching reading comprehension of reading passages. Students hold the biggest burden as they usually are not interested in the topic of the reading passages, for instance .

The concept of metacognition involves reflection, critical awareness and analysis, monitoring, and reinvention. Students who are engaged in metacognition recognize the requirements of the task at hand, reflect on the strategies and skills they may employ, appraise their strengths and weaknesses in the use of these strategies and skills, make modifications, and monitor subsequent strategies .Many of the specific outcomes in this program of studies emphasize metacognition. Students recall and describe what they have done in a particular situation, and recount how, when and why. Students then assess the value of the strategies they have used, make modifications to them or abandon them in favour of new approaches, and monitor the use of these reworked or new strategies in future situations(Alberta Learning,2001:2).

Knowing what each word means isn't enough for successful reading comprehension. The true meaning of any text is found in the relationships between the words. A good reader engages with the text by using metacognitive processes such as pondering, challenging, and analyzing a text (Milan, 1987:1-2). Since there is a great association between the learners' cognitive and metacognitive processes in one hand and reading comprehension skills on other , then a significant emphasis should be put on these areas.

According to Lehr et al (2005:20), reading comprehension can be boost by many strategies including Question-Answer Relationship (QAR). Raphael created QAR as a reading comprehension strategy in 1968 to explain how students handle the tasks of reading texts and answering questions. It discusses the reader's prior experience and invites him to participate in the practice of reading. QAR also assists students in developing more effective thinking techniques for coping with new texts. According to studies, readers use their understanding of text structure to store, retrieve, and summarize the information they read (Lems, et al, 2010).

1.2 Aims of the Study

This study mainly aims at finding out:

1.The degree to which the students' metacognitive abilities in relation to their linguistic repertoire have been developed.

2. The extent to which EFL students have developed their metacognitive skills through reading comprehension by using question-answer relationship (QAR)

1.3 Hypothesis

The aims of the study are supposed to be achieved through verifying the following hypothesis:

1. There is no significant difference between the mean scores of the experimental group's   and that of the control group in the posttest after applying question-answer relationship (QAR) on the reading comprehension.

1.4 Limits of the Study

The current study is limited to the following:

1-The fifth preparatory EFL students at Salah Aldin governorate, Al Dour Preparatory School For Boys, who are studying during the academic year 2020\ 2021.

2- Four Selected reading passages in the Iraqi national curriculum book "English for Iraq" for the fifth preparatory grade.

١.5 Value of the Study:

The current study could be valuable and greatly beneficial to EFL preparatory students and teachers of English as well , as in the following points:

1- It gives both teachers and students new insights concerning cognitive and metacognitive abilities and guides them to the best method of increasing such abilities. The scope of metacognition is prominently active and noticeable within QAR activities . This leads eventually for better understanding and everlasting memorization of certain vocabularies, facts, topics and even grammatical structures.
2- It reveals the benefits of QAR strategy in the field of interactive teaching. Teacher in QAR is not the center of learning even if the number of learners is so big and difficult to manage, QAR strategy would make interaction much more available and effective.

1.6 Definitions of Basic Terms
1- Metacognition

"knowledge of the mental processes which are involved in different kinds of learning. Learners are said to be mentor teacher capable of becoming aware of their own mental processes". This includes recognizing which kinds of learning tasks cause difficulty, which approaches to remembering information work better than others, and how to solve different kinds of problems. Metacognitive knowledge is thought to influence the kinds of learning strategies learners choose (Richards and Schmidt,2002:228-229).

Operational definition : it is the change that happens on students' reading comprehension by applying QAR strategy.

2- QAR

Question Answer Relationship (QAR) strategy is a strategy in reading developed by Raphael in 1986 to explain how students handle the tasks of reading

texts and answering questions. It allows students to read texts actively. QAR outlines where information can be found "In the Text" or "In My Head" (Bouchard,2005:36). The actual question-answer relationships are then divided into four subcategories: "Right There," "Think and Search," "Author and Me," and "On My Own" (Raphael 1986:516).

Operational definition: it is a group of techniques and tasks that aim at making the students' reading comprehension skills become better. Basically, via activating the relationship between a question and its answer.

3-Strategy

Strategy refers to "procedures used in learning, thinking, etc., which serve as a way of reaching a goal" (Richards and Schmidt,2002:515).

Operational definition: it careful plan that involves activities which eventually helps students to improve their reading comprehension.

Section Two: Theoretical Background

2.1 The Concept Of Metacognition

It is a fact that the ability to reflect on one's own thoughts and experiences is probably a unique human capability; humans can reflect on their lives, thoughts and actions, whereas animals cannot. Furthermore, humans are the only species that can plan their future, think about their past and learn from their experiences, and to some extent also foresee what will happen to them. They can also imagine what it is like to be someone else; that is, they can feel empathy for others. People's ability to reflect on their own thoughts, or metacognition, is a recent result of evolution; whereas animals are purely instinct and stimulus bound, metacognition allows humans to exert self-control over their actions (Haukas et al ,2018:11)

It has been nearly four decades since the term "metacognition" was introduced by psychologist John Flavell. The term itself is derived from the Greek word *meta* after or beyond) and the Latin word *cognoscere* (to know or ponder). Flavell described the term as a heightened awareness of one's thought processes,

that is, "knowledge concerning one's own metacognitive processes or anything related to them" . Others, including Brown in1987, Barell in 1991 , Metcalfe and Shimamura in 1994 , and Zhang in 2010 , while basically accepting Flavell's description, have expanded the term to reference such cognitive activities as reflection, sentience, selfregulation, self-assessment, and even executive function (Arthur et al ,2012:9). In the field of language learning, it refers to the knowledge of the forms, structure and other aspects of a language, which a learner arrives at through reflecting on and analyzing the language. In linguistic analysis, researchers sometimes make use of a native speaker's metalinguistic knowledge as one source of information about the language (Richards and Schmidt,2002:230).

2.2 Cognitive And Metacognitive Processes In Learning

The cognitive system, a system of knowledge and belief, that develops in early childhood and that interacts with many other factors to determine the kinds of behavior that we observe (Chomsky,2006:4). Cognitive knowledge includes knowledge of facts and concepts, knowledge of procedures, and knowledge of conditions. Cognitive knowledge includes the subject matter that is learned in schools. In school, we learn facts, definitions, and concepts such as the capital cities of countries, the meaning of words such as optician, and the meaning of concepts such as density of material. In school, we also learn how procedures can be performed to deal with, for instance, numbers (e.g., subtraction, multiplication, and linear equations) and letters (e.g., build vocabulary, draw inferences, read texts, and write down information). For example, we learn how to subtract numbers, how to translate words into another language, and how to identify plants. Cognition then is to do with mental processes involved in reading(Majeed and Saadi, 2020:4). Finally, in school we learn the conditions that state which procedure is required for which situation. For example, to increase quantities quickly, multiplication is more appropriate than addition. In other words, cognitive knowledge includes declarative, procedural, and conditional knowledge (Velzen,2016:23). One of the Cognitive problems is that we grow up learning to speak and in normal circumstances spend much of our time doing it. We also appear to speak without much conscious effort(Majeed and Muhammed, 2020: 35). Reading comprehension from a cognitive prospect is a process in which the human mind reads and translates ideas from the mind of

the writer to the mind of the reader. This process encompasses the process of decoding letters on page into sound-based or spelling-based representation of the word in the mind. Those representations are linked to mental orientation of the word meaning (Willingham,2017:146). It seems that the most important cognitive issues arising from the nature of pupil learning , are those concerning the nature of short term memory (STM) and long term memory (LTM). These issues concern three main aspects of learning:

1-What is the nature of STM functioning?

2- How is information relayed from STM and stored in LTM?

3-How is previous learning brought to bear in meeting new demands (termed 'transfer of learning')?

The most interesting aspect of STM functioning concerns the conscious mental activity involved in learning. This includes the notion of 'mental effort', which can be conceived of, broadly, as a combination of attention and concentration, and the notion of 'metacognition', which concerns pupils' active and conscious direction of their mental activity towards learning. Both are clearly affected by pupils' general motivation and attitudes, and by pupils' previous experience of learning (Kyriacou,2009:31) . When faced with a learning activity, the pupil is engaged in a complex web of decision-making, including such possible reactions as 'This is boring', 'I don't understand this', 'This is important so I must concentrate'. Such reactions will influence the effort and strategies that will characterize their STM functioning.

The question of how information is processed in STM and then relayed and stored in LTM is of immense complexity. What is processed in STM appears to be relayed to LTM and stored there.

Moreover, the main problem is that of retrieving the information from LTM. Retrieval failure is evident in the fact that a pupil may not be able to recall a piece of information but is readily able to recognize the correct answer if choices are offered. Forgetting appears to be largely a failure to retrieve stored information. Important learning, however, can be consolidated by practice and revision techniques, and by linking the learning to a number of different aspects of the pupil's

understanding. Learning that is stored but that has very little association with other learning makes retrieval very difficult. This problem can be dealt with, however, if the learning has been 'overlearned' by being well rehearsed and frequently used (e.g. a particular mathematical formula) or if a mnemonic device is used (e.g. use of a rhyme such as 'Thirty days has September', or through association by pairing with a strong visual image). The advantage of meaningful learning for retrieval stems from the way LTM is organized in terms of a complex network of associations, within which meaningful links are of paramount importance. In general, retrieval is dependent upon strength of initial storage and the existence of links that can be used to locate the required information (ibid:32).

This is consolidated by subsequent practice and the establishment of further links. 'Transfer of learning' refers to the pupil's ability to make use of previous learning in dealing with new tasks and in new situations. To facilitate such transfer is perhaps one of the most important tasks of effective teaching. One of the major obstacles to such transfer is that pupils tend to compartmentalize their learning, using retrieval plans that depend on matching specific characteristics of the learning task to the particular compartment of understanding. This is revealed by the frequent inability of pupils to transfer learning from one subject to another, or sometimes even from one topic to another within the same subject. This tendency partly arises because the majority of pupils see school learning as producing correct answers. Therefore, doing school work successfully is primarily a matter of matching the appropriate behaviour to the task set by the teacher. As such, a pupil may fail to appreciate that behaviour that successfully dealt with one task could be relevant to another topic in the same subject area or to a topic in another subject area. The term 'situated learning' is now widely used to refer to this powerful tendency to relate what is learnt to the situation in which it is learnt. It is clear that a major task of effective teaching is to make use of activities that highlight applications of what has been learnt in order to facilitate transfer of learning, especially from school learning to 'real-life settings' (e.g. calculating mortgage interest rates, looking at rusting in cars, writing a letter to a newspaper, booking a hotel room in French). LTM consists of an extremely complex network of associations.

The development of such associations has been described in terms of Piaget's notions of assimilation and accommodation, and in terms of Skinner's notion of operant conditioning. However, it is worth noting that some associations

are best explained in terms of another type of conditioning, termed 'classical conditioning', developed by Pavlov in 1927. Classical conditioning is based on associations being built up between stimuli that are paired together, usually within a short time interval and in psychologically significant circumstances, so that the appearance of one signals the appearance of the other. Pavlov's most known example is that of a dog learning to salivate in response to the sound of a bell, the sound having previously been paired with the provision of food on a number of occasions.

In terms of effective teaching, classical conditioning theory has two major implications. The first draws attention to the way in which associations can be built up through proximity in time. Second, that once a response comes to follow certain stimuli, the response can generalize to other similar stimuli. Thus pupils may build up link between emotional responses, both pleasant and unpleasant, and particular stimuli(ibid:33).

Metacognition may enhance students' ability in reading comprehension and the ability to monitor the reading of popular press. Studies have shown that students who use metacognition are more likely to (a) develop conceptual understanding, (b) go through a process of knowledge construction and meaningful understanding (c) comprehend texts better (d) have higher motivation and accurate views of what it means to understand in a certain topic(Dori et al.,2017:36).

2.3 Significance Of Metacognitive Strategies to EFL Learners

The distinctions between cognitive and metacognitive strategies are important, partly because they give some indication of which strategies are the most crucial in determining the effectiveness of learning. It seems that metacognitive strategies, that allow students to plan, control, and evaluate their learning, have the most central role to play in this respect, rather than those that merely maximize interaction and input--thus the ability to choose and evaluate one's strategies is of central importance (Graham, 1997: 42-43) .Rather than focus students' attention solely on learning the language, second language teachers can help students learn to think about what happens during the language learning process, which will lead them to develop stronger learning skills. Learners who are

metacognitively aware know what to do when they do not know what to do; that is, they have strategies for finding out or figuring out what they need to do. The use of metacognitive strategies ignites one's thinking and can lead to more profound learning and improved performance, especially among learners who are struggling. Understanding and controlling cognitive processes may be one of the most essential skills that classroom teachers can help second language learners develop. It is important that they teach their students metacognitive skills in addition to cognitive skills.

2.4 Modals Of Metacognition

Metacognition combines various attended thinking and reflective processes. It can be divided into five primary components: (1) preparing and planning for learning, (2) selecting and using learning strategies, (3) monitoring strategy use, (4) orchestrating various strategies, and (5) evaluating strategy use and learning(Anderson ,2002). Teachers should model strategies for learners to follow in all five areas,

## 2.5 Metacognitive Strategies To Enhance Reading Comprehension

Learners are supposed to learn more powerfully through reading than through listening to their teachers. Moreover, learning to read is believed to be achieved more easily than the other three language skills. The skill of reading goes beyond the ability of simply recognizing letters and sounding them. The essential step in the skill of reading is the comprehension of the material. Relatively, proposes two views on reading; with the first one he accepts it as "matching sounds to letters", and with the second one he indicates that it is a mystery, that "nobody knows how reading works". reading comprehension strategies as the mental operations or comprehension processes that readers select and apply in order to make sense of what they read (Razi,2010:10). Appling metacognitive strategies on reading comprehension focuses on:

1- skills of distinguishing and understanding main ideas and important details.

2- skills of understanding passages by means of language skills.

3- special reading skills, which comprise skimming the passage to get the main idea and scanning the passage to get particular information (Zhang,2018:6).

2.6 The Strategy Of QAR

Despite the fact that students ask and answer questions from the time they are toddlers, in school settings they are often ineffective in mastering comprehension strategies for answering them. For many of these students, this passive and poor performance during classroom discussions in fact stems from a lack of understanding about sources of information for answering and asking questions. "This problem is what Question Answer Relationships (QAR) was designed to address". QAR is a comprehension strategy that provides a way to think and talk about sources of information for answering questions. The language of QAR and the accessibility of the concepts underlying it gives teachers a way to meet the rising expectations for higher levels of thinking in our increasingly diverse schools(Zhang,2018:13-14).

Question Answer Relationship (QAR) strategy is a kind of strategy in reading developed by Raphael in 1986. According to Raphael(1988:516) ,QAR is a reading comprehension strategy developed to clarify how students approach the tasks of reading texts and answering questions. It encourages students to be active readers of texts. QAR outlines where information can be found "In the Text" or "In My Head." It then breaks down the actual question-answer relationships into four types: "Right There", "Think and Search", "Author and Me", and "On My Own" (Raphael 1986:516).Raphael (ibid:220) explained that the four types of questions can help students to analyze the QAR and this enables them to become skillful at analyzing the types of questions that they are typically asked to respond to when reading a text. QAR strategy teaches students that there are two broad sources of information for answering questions: the text and their own background knowledge.
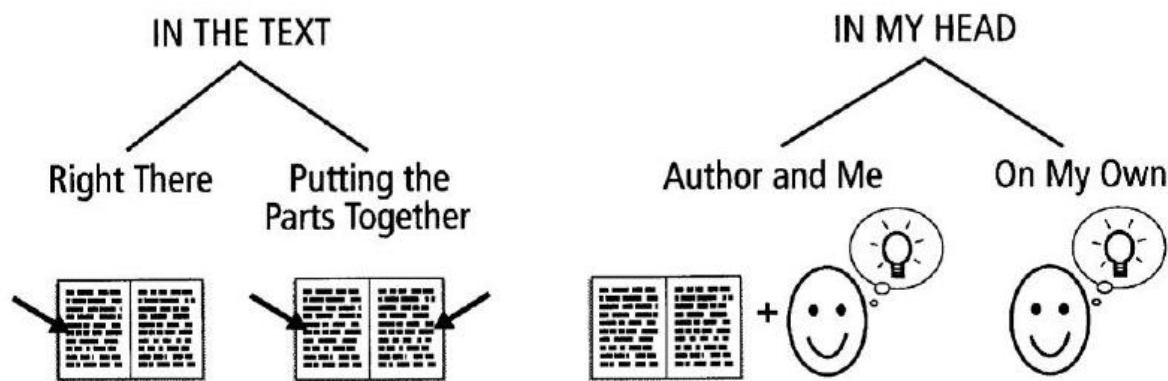
QAR is a strategy that can aid ELLs in categorizing and understanding questions and thus lead to a more successful outcome for an answer. QAR divides questions and responses into two broad categories: In the Text and In My Head. These two categories are then each subdivided into two components, as shown and explained below (Bouchard,2005:36).

Figure (1) shows QAR Categories(Bouchard,2005:36).

Using the QAR question–answering training strategy is useful for at least two other purposes. First, it can help teachers examine their own questioning with respect to the types of questions and the information sources students need to use to answer their questions. Second, some teachers may find that by using QARs to monitor their own questioning behaviors, they are asking only right there types of

questions (i.e., literal/low level questions in Bloom's taxonomy). This discovery should lead teachers to ask questions that require the use of more in my head questions. Students can use QARs for self-questioning before and after reading. They may be asked to write questions for each of the QAR categories and answer these questions. Finally, posters displaying the information in Figure 1 can heighten children's and teachers' awareness of the types of questions asked and the information sources available for answering those questions(Reutzel & Cooter, 2008:285).

QAR addresses four troubling problems of practice nowadays, especially involving students of diverse backgrounds who often receive little literacy instruction oriented to promoting high levels of thinking about text.

First of all, QAR can help address the lack of a shared language among teachers and students for improving questioning practices, whether in the day-today life of the classroom, in students' activities outside of school, or in high-stakes testing situations. Second, QAR can bring coherence to literacy instruction within and across grade levels by providing a framework for a developmental progression for comprehension instruction. As a framework, QAR provides a means for organizing comprehension strategy instruction. Third, QAR provides a focal point to begin sustained efforts for whole school reform aimed at higher standards for literacy learning and teaching. All readers at all grades can benefit from learning to think in terms of information sources for answering and asking questions. Fourth, QAR provides a responsible approach to preparing students for high-stakes tests at different grade levels and in a variety of subject areas, without detracting from the high-quality instruction that leads to high levels of literacy.

Using the QAR framework can provide benefits to schools, teachers, and students for a relatively small amount of time and effort. For schools, the benefit comes in the chance to pull the grade levels together around reading comprehension instruction. For teachers, the benefit is found in the opportunity to improve instruction around questioning activities and reading comprehension. For students, the benefit lies in gaining access to reading comprehension and higher level thinking with text (Lapp and Fisher, 2009:32).

2.6.1 Types Of Questions In QAR

The four types of questions in QAR strategy are as follows:

1) Right There Questions: "Right There" questions require you to go back to the passage and find the correct information to answer the questions. These are sometimes called literal questions because the correct answer can be found somewhere in the passage. "Right There" questions sometimes include the words, "*According to the passage..", "How many..?", "Who is..?", "Where is..?",* and "*What is..?".* The steps that may be purposed to answer *Right There* questions are reread, scan, and look for key words.

2) Think and Search Questions: "Think and Search" questions usually require you to think about how ideas or information in the passage relate to each other. You will need to look back at the passage, find the information that the question refers to, and then think

about how the information or ideas fit together. "Think and Search" questions sometimes include the words, "*The main idea of the passage..", "What caused..?",* and "*Compare/contrast.."*

The steps that may be purposed to answer *Think* and *Search* questions are skim or reread, look for important information, and summarize. (Bouchard,2005:36).

3) Author and You Questions: "Author and You" questions require you to use ideas and information that is not stated directly in the passage to answer the question. These questions require you to think about what you have read and formulated your own ideas or opinions. "Author and You" questions sometimes include the words, *"The author implies…", "The passage suggests…", "The reader's attitude..,"* The steps that may be purposed to answer *Author and You* questions are reread, think about what you already know and what the author says and predict.

4) On My Own Questions: "On My Own" questions can be answered using your background knowledge on a topic. This type of question does not usually appear on tests of reading comprehension because it does not require you to refer to the passage. "On My Own" questions sometimes include the words, *"In your opinion..?"* and *"Based on your experience..?"* (ibid)

Section Three : Procedures

3. 1 The Experimental Design

The researcher has followed the non- randomized pretest/ posttest design for the sake of achieving the aims of the study and verify its hypothesis. The researcher therefore used two groups, one group represents a control group and the other group as an experimental one.

In this design, the pretest has been given to the students before giving them the independent variables .The posttest is accomplished after the teacher gives them the independent variables. Only the experimental group received the independent variable (QAR Strategy). At the end of the experiment, both groups are tested and their scores are compared to identify the effect of the independent variable.

3.2 Population and Sample of the Study

The whole population of the present study includes 739 fifth preparatory students at Al Dour city, Al Dour Preparatory School For Boys students who are studying the academic year 2020-2021.The students are arranged into two groups (A and B) have been randomly selected to be the experimental and control group whose total number is (62). Division (A) consists of thirty one students and division (B) consists of thirty one students, as well. Six members are excluded from each division (A) and (B). Those 12 students serve to be the members in the pilot study groups. Thus , 25 students have been selected from section (A) as experimental group and 25 students from section (B) as a control group. The total number to the involved sample is fifty students

3.3 Equalization

The researcher has equated the subjects on the basis of the following variables: (the pre- test scores, the academic level of father ,the academic level of mother, the age of students, and the students' scores of the previous year).

3.3.1 Construction and Application of the Pre-Test.

For the sake of achieving the equalization between the two involved groups a pre-test has been constructed. After applying the test , the mean score of the experimental group (45.24) and the standard deviation of (8.68) while the mean score of the control group (45.40) And with a standard deviation of (5.66). When the results of the two groups were subjected to the test of differences between the

two mean score using the T-test of two independent groups, there were no statistically noticeable differences at (0.05) level of significance .The Calculated value (0.0772) was smaller than the tabulated value of (2.01) and the degree of freedom (48) indicating the equivalence of the two groups in the pretest.

3.3.2 The Academic Level of Father

Results show that the chi- square of the computed value is (1.01) which is found to be lower than the tabulated value (11.07) , at the degree of freedom (5) and a level of significance (0.05) which means that there is no significant difference between the two groups in fathers' educational level.

3.3.3. The Academic Level of Mother

Chi- Square formula is calculated to give a value of (3.8) which is lower than tabulated value which is (12.59) at degree of freedom (6) and level of significance(0.05). This indicates that there is no significant difference between the two groups in mothers' educational level.

3.3.4 The Age of Students

The students' age in months for the two groups are counted until the fifteenth of February 2021 to find out any possible difference between their ages. By applying t-test formula for two independent groups, it is found that there is no significance difference between the experimental group and the control group in their age since the mean value of the experimental group is (192.76) and the standard deviation is (7.9) while that of the control group is (192.0) and the standard   deviation is (7.4). The computed   t-value is (0.384) which is found to be lower than the tabulated value which is (2.01) at the degree of freedom (48) and the level of significance (0.05). This means that the students of the two groups are equal in their age.

3.3.5 The Scores of Previous Year

Students' scores in English language in the previous academic year (2019-2020) has been reviewed and treated. The mean scores value of the control group 67.48 with standard deviations 12.54and while of the experimental group has a mean of 69.96 standard deviations 13.53. The calculated T. value is 0.672 which is lower than the tabulated T. value 2.01 at degree of freedom 48 and the level of

significance 0.05. This indicates that there is no significant difference between the two groups in this variable.

3.4 Instructional Materials and Lesson Plans
The instructional materials which are taught to the two groups of students include units two and three <u>English for Iraq</u> Student's Book (5th preparatory). The reading comprehension texts of these units have been taught to the experimental group by adopting the QAR strategy. whereas, the control group has been taught the same passages without using the QAR strategy for a period of ten weeks. The Experiment started on the 15th of December 2020 and ended on the sixteenth of February 2021. The steps followed for teaching the two groups are explained in the following model lesson plans as stated in the form of procedures:

Procedure 1:before reading the passage, the teacher, looks at asks the class few questions to brainstorm them about the central idea of the topic. He then writes their ideas on the board. Tell the students they are going to skim the texts in the textbooks. Procedure 2: The teacher reads a sample text from the text book. He then generates questions that fall into each of the QAR question categories (Right There, Putting the Parts Together, Author and Me, On My Own). Procedure 3: The teacher explains what does QAR cards mean then he uses them for group responses. Students can point to the appropriate card when asked to identify the type of Question-Answer Relationships required. Whereas, the lesson plan of the control group contains the same steps, but the way of teaching is different, as follows:

Procedure 1:The teacher asks the students to find words in the texts in the student's book that mean the same thing as the words and phrases in the activity book. He then asks the students to read the first text again to find the answers to the questions mentioned in the activity book. Procedure 2: The teacher tells students that the information shown in the pie charts is also in the first text. He reminds them to scan the article and match the charts with the correct titles. Procedure 3:The teacher continues directing students' attention to the useful expressions in the activity book

3.5 Instrument of the Study: Construction of an Achievement Posttest, its Scoring Scheme and its Application

The achievement posttest consists of three passages taken from <u>English for Iraq</u> 5th preparatory student's book all are selected from unit three namely : *The Oryx is Back, The Environment ,* and *Almost Extinct* . An achievement test has been constructed in term of the content and behavioural objectives of the instructional material. The test includes eight questions The first question is a true/ false question that consists of five items with a total score of fifteen marks .The second question is a matching lists question that consists of five items as well with total score of fifteen marks. The third question is an MCQ question. It consists of five items with total marks of ten. Each item takes two marks. The fourth question takes the form of gab filling and consists of five items with total marks of ten. Each item is scored out of two marks. The fifth question is an open-ended   reading comprehension question which consists of ten items. Each item represents a single question that requires a specific answer. It has a total score of thirty marks for   each item is scored with three mark. Questions, six, and seven consist of one single item with open-ended response. Each question has a total score of five marks while the eighth question is scored out of 10. It also contain one single item. After calculating the validity DL, DP, and reliability of the posttest, it has been administered to the experimental and control groups, whose number is fifty students, on the 16th February, 2021. The posttest papers have been distributed to the involved testees who are informed to answer the questions within seventy five minutes. After finishing the exam, the test papers are collected to be scored.

Section Four: Analysis of Data, Discussion of Results and Conclusions

4.1 Post-test Achievement Distinction Between the Experimental and Control Groups

Both mean scores are collected and compared in the posttest to see whether there is any significant difference between the mean scores of the experimental group as well as those of control group. The experimental group has a mean scores of (68.68), while the control group has a score of (55.00). The calculated t-value for two independent samples using the t-test equation is (9.91) whereas the tabulated t-value is (2.01) at the degree of freedom (48) and level of significance (0.05), as seen in table (4.1).

Table (4.1)

The Mean Scores, Standard Deviations and T-Values of the Two Groups in the Posttest

Group	No. of Students	Means Scores	SD	T-Value		DF	Level of Sig.
				Computed	Tabulated		
Exp.	25	68.68	5.20	9.91	2.01	48	0.05
Cont.	25	55.00	4.53				

This suggests that there is a significant difference between the experimental and control groups' mean scores, giving the latter an advantage over the first .

4.2 Discussion of the Obtained Results

The current study's findings indicate that students in the experimental group who were taught by using QAR strategy performed better than those in the control group who were taught using the conventional method. This means that QAR strategy is more effective than the conventional method in improving metacognitive processes and in teaching reading comprehension of English texts .

The following factors can be attributed to the students' improvement by the use of the QAR strategy:

1- There was a significant development in students cognitive and metacognitive process most noticed in recognition and production level . Post- test questions at production level shade light on cognitive activities such as remembering , analyzing and recall of certain vocabularies . while the last four questions concentrate on metacognitive processes best noticed when students thinks and rethinks of his final judgment to express new ideas or in reflecting thier prior knowledge .

2- It motivates students since it creates an interactive environment between the teacher and his students in one hand and among students on the other. Furthermore, unique intellectual processes takes place inside the student's mind when he recalls and links previous experiences to the current topics using questions of the QAR subcategory "think and search" and "author and me" as mentioned in chapter two .

4.3 Conclusions

The following conclusions are drawn from the study's findings:

1. The use of QAR strategy proved to be highly effective in improving students metacognition via improving their reading comprehension skills.
2. Unlike the conventional method of teaching reading , QAR provides an accessible and interactive atmosphere in which both the teacher and the students share knowledge, discuss problems, and communicate ideas, thereby enhancing the teaching of reading comprehension.
3. Students gain new insights into reading passages and texts. Reading passages became the intention to explore new ideas and link them to students' previous experience, rather than struggling with cumulative and exhausting lines. Students are highly inspired to read because they have such an urge.
4. QAR leads to a significant increase in cognitive and metacognitive skills .During QAR, these skills are significantly improved, especially the metacognitive property of a student's ability to articulate his ideas and opinions and relate them to the lesson's studied topic, which aids the student in breaking a psychological barrier and increasing his level of production.
5. QAR seems to have positive psychological effects on both teachers and students. Shy students have a social aversion to speaking with their teachers. The new environment of teacher-student interaction allows every student to engage and practise their English skills to the fullest extent possible.

4.4 Recommendations

1. The use of QAR in English classroom is promoted not only in terms of literacy, but also in terms of developing other skills especially metacognitive ones.
2. Due to the lack of modern technology in some Iraqi schools, especially in rural areas, QAR has proven to be a good and new material for improving student performance.
3. Teachers should be prepared to use the QAR technique more effectively through training programmes held at schools or other educational institutions.
4. Teachers should make considerable effort to improve student engagement by allowing them to express themselves and address various topics within the same subject.
5. Using QAR strategy to enhance Iraqi EFL undergraduate students reading of short stories .

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