

إقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

## **The Impact of Using Question Answer Relationships Strategy on Enhancing Sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it**

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The work provided in this thesis, unless otherwise referenced, is the researchers own work, and has not been submitted elsewhere for any other degree or qualification

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**The Impact of Using Question Answer Relationships  
Strategy on Enhancing Sixth Graders' Higher Order  
Thinking Skills in Reading and Their Attitudes  
Toward it**

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## نتيجة الحكم على أطروحة ماجستير

بناءً على موافقة شئون البحث العلمي والدراسات العليا بالجامعة الإسلامية بغزة على تشكيل لجنة الحكم على أطروحة الباحثة/ رانية ديب عبدالرحمن الكفارنة لنيل درجة الماجستير في كلية التربية / قسم مناهج وطرق تدريس وموضوعها:

فاعلية استخدام إستراتيجية "علاقات الإجابات بالأسئلة" في تنمية مهارات التفكير العليا لقراءة اللغة الانجليزية لدى طلاب الصف الأساسي لدى طلاب الصف السادس الأساسي واتجاهاتهم نحوها

### The Impact of Using Question Answer Relationships Strategy on Enhancing Sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it

وبعد المناقشة العلنية التي تمت اليوم الاثنين 18 جمادى الأولى 1436هـ، الموافق 2015/03/09م الساعة الواحدة ظهراً بمبنى اللحيان، اجتمعت لجنة الحكم على الأطروحة والمكونة من:

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واللجنة إذ تمنحها هذه الدرجة فإنها توصيها بتقوى الله ولزوم طاعته وأن تسخر علمها في خدمة دينها ووطنها.

والله ولي التوفيق ،،،

مساعد نائب الرئيس للبحث العلمي و للدراسات العليا

.....  
.....  
أ.د. فؤاد علي العاجز





*In the Name of Allah the Most Merciful the most Gracious*



(Quran, Al-Qalam, verse 1)

# DEDICATION

**I would like to dedicate my work:**

*To Allah, who is the source of wisdom, patience, and infinite love.*

*To our prophet Mohammed, peace be upon him.*

*To my beloved country, Palestine.*

*To the soul of my father.*

*To my mother, who has sacrificed everything in her life for us.*

*To my husband, who tolerated a lot to let me continue my higher studies*

*To my beloved sons and daughters, who endured a lot to let me continue.*

*To all my brothers and sisters, who have been supporting and encouraging  
me.*

*To my sincere friends.*

*To my university, "The Islamic University of Gaza".*

*To the great martyrs and prisoners, the symbol of sacrifice.*

*To all who lightened my way towards success.*

*To all knowledge seekers.*

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*Finally, I reiterate my cordial acknowledgement and high appreciation to those who helped me in this study*

## **ABSTRACT**

### **The Impact of Using Question Answer Relationships Strategy on Enhancing sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it**

The study aimed to investigate the impact of using Question Answer Relationships strategy on enhancing sixth graders' Higher Order Thinking Skills in Reading and their attitude toward Reading. The target skills were analysis, synthesis, and evaluation. For answering the questions of the study, the researcher adopted the experimental design. The sample of the study consisted of (77) students distributed into two groups. One of the groups represented the experimental group of (38) students; and the other represented the control one of (39) students. The groups were randomly chosen from UNRWA Beit Hanoun Elem Coed "A" School in Gaza Strip.

The Question Answer Relationships strategy was used in teaching the experimental group while the traditional method was used with the control one in the second term of the school year (2013-2014). For collecting the data the researcher constructed three tools (The Higher Order Thinking Skills test of three skills with (28) items was designed and validated to be used as a pre and post test and a scale with (30) items to measure the students' attitudes toward reading in the English language for the sixth graders was used. In addition, the researcher used an observation card as a supportive tool to measure the experimental group development in acquiring Higher Order Thinking Skills.

The data of the study were analyzed using T-test independent sample, which was used to determine significant differences between the groups. Effect size technique was used to measure the effect size of the Question Answer Relationships strategy on the experimental group in each scope of the higher order thinking test. The results indicated that there were statistically significant differences between both groups in favor of the experimental one. The effect size technique indicated a large effect of the Question Answer Relationships strategy on improving synthesis, and evaluation skills while it had a medium effect on improving analysis skills for the experimental group. The results of the observation card showed a large effect on the students' performance in all HOTS domains through using Question Answer Relationships strategy. The attitude scale indicated that there were no statistically significant differences between the experimental and the control group's attitude toward reading in post application.

The study recommended to use the QAR strategy in teaching English language to improve students' higher order thinking and reading comprehension. It was also suggested to conduct further research to investigate the effectiveness of QAR strategy on developing the students' HOTS in other school subjects.



## Arabic Abstract

### ملخص الدراسة

"اثر استخدام إستراتيجية علاقات الإجابات بالأسئلة في تنمية مهارات التفكير العليا لدى طالبات الصف السادس الأساسي في القراءة و اتجاهاتهم نحوها"

هدفت الدراسة إلى التعرف إلى اثر استخدام إستراتيجية علاقات الإجابات بالأسئلة في تنمية مهارات التفكير العليا لدى طالبات الصف السادس الأساسي في القراءة و اتجاهاتهم نحوها ، حيث كانت المهارات المستهدفة : التحليل ، التركيب ، و التقويم.

وللإجابة عن أسئلة الدراسة ، استخدمت الباحثة المنهج التجريبي ، حيث طبقت الدراسة على عينة ممثلة من (٧٧) طالبة من مدرسة بيت حانون الابتدائية المشتركة أ وهي مدرسة تابعة للاونروا قسمت لمجموعتين إحداهما تجريبية تكونت من (٣٨) طالبة والأخرى ضابطة تكونت من (٣٩) طالبة . تم اختيار المجموعتين بالطريقة العشوائية واستخدمت إستراتيجية علاقات الإجابات بالأسئلة في تدريس المجموعة التجريبية بينما استخدمت الطريقة العادية في تدريس المجموعة الضابطة وذلك خلال الفصل الدراسي الثاني من العام الدراسي (٢٠١٣-٢٠١٤).

ومن اجل جمع البيانات قامت الباحثة بعمل ثلاث أدوات للدراسة وهي اختبار مهارات التفكير العليا مكون من (٢٨) فقرة تم تطبيقه قبلها وبعديا على المجموعتين ومقياس للاتجاهات للتعرف على اتجاهات الطالبات نحو القراءة مكون من (٣٠) فقرة) تم تطبيقه قبلها و بعديا على المجموعتين بالإضافة لأداة مساندة وهي بطاقة ملاحظة لقياس التقدم في مهارات التفكير العليا لدى طالبات المجموعة التجريبية ، طبق الاختبار قبلي وبعدي على المجموعة التجريبية.

وبعد تحليل النتائج ومعالجتها إحصائيا باستخدام اختبار ت- لمجموعتين مستقلتين المستخدم لمعرفة الفروق الإحصائية بين المجموعات وباستخدام مربع ايتا لقياس حجم الأثر المستخدم لقياس حجم اثر الإستراتيجية على كل مجال من مجالات الاختبار . أظهرت النتائج وجود فروق ذات دلالة إحصائية بين المجموعتين الضابطة و التجريبية في اختبار مهارات التفكير العليا لصالح المجموعة التجريبية . وجد أيضا انه هناك اثر كبير لصالح المجموعة التجريبية في مهارتي التركيب والتقويم واثر متوسط في مهارة التحليل وبالمجمل كان هناك اثر كبير في المهارات الثلاث لصالح المجموعة التجريبية ووجود أيضا اثر كبير للإستراتيجية على اكتساب الطالبات لمهارات التفكير العليا على بطاقة الملاحظة، كما لم تظهر النتائج وجود فروق ذات دلالة إحصائية بين المجموعتين التجريبية والضابطة في التطبيق البعدي لمقياس الاتجاه.

هذا وقد أوصت الدراسة بضرورة استخدام إستراتيجية علاقات الإجابات بالأسئلة لتنمية مهارات التفكير العليا في تدريس اللغة الانجليزية ، واقترحت الباحثة ضرورة إجراء المزيد من الدراسات للتعرف على اثر استخدام الإستراتيجية في تنمية الفهم القرائي للغة الانجليزية وتنمية مهارات التفكير العليا في المواد الدراسية الأخرى.



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## List of Abbreviations

No.	Abbreviation	Denotation
1	SPSS	Statistical Package for Social Sciences
2	Ss	Students
3	T	Teacher
4	et al	(Latin Abbreviation) Means and Others
5	IUG	Islamic University of Gaza
6	HOTS	Higher Order Thinking Skills
7	QAR	Question Answer Relationships Strategy
8	SQ3R	Survey, Question, Read, Recite, Review
9	SQ4R	Survey, Question, Read, Recite ,Recall ,Review
10	RT	Right There
11	TS	Think &Search
12	AM	Author &Me
13	OMO	On My Own
14	CAI	Computer Assisted Instruction
15	CBI	Computer Based Instruction
16	TPB	Theory of Planned Behavior
17	Intel	A name for A company



# **Chapter I**

## **Study Backgroun**

# **Chapter I**

## **Background of the Study**

### **1.1- Introduction**

In today's world it is necessary for the students to develop their thinking skills and to be effective and skilful thinkers. Thinking validates existing knowledge and enables individuals to create new knowledge and to build ideas and make connections between them. Thinking entails reasoning and inquiry together with processing and evaluating information. It enables the exploration of perceptions and possibilities. It also involves the capacity to plan, monitor and evaluate one's own thinking, and refine and transform ideas and beliefs. If you want to read well in English, you must think in English as you read. Understanding the words and the grammar is not enough. You need to be able to make logical connections between the ideas and information in your reading. This means you need to think logically.

That is why we should do all our best to teach our students how to think and direct their attention to use their mental abilities in an appropriately. All students are capable to think, but most of them need to be encouraged taught and assisted to the thinking processes. These thinking skills are teachable and learnable. All students have the right to learn and apply thinking skills, just like other disciplines of knowledge. Thinking skills requires someone to apply new information or prior knowledge and manipulate the information to reach possible answer in new situation. A question to be answered or a problem to be solved cannot be done through routine application of previously acquired knowledge. But it can be solved only when expanded use of mind occurred that a person must interpret, analyze or manipulate information. This is because thinking is characterized as non algorithmic, complex, self regulative, meaningful, effortful and providing multiple solutions, nuanced judgments, multiple criteria and uncertainty. thinking skills is an important aspect in teaching and learning. Thinking skills are fundamental in educational process.

A person thought can affect the ability of learning, speed and effectiveness of learning. Therefore, thinking skills is associated with learning process. Students who are trained to think demonstrate a positive impact on the development of their education.

Elkabeer, (2008:p.3-8) states that the main purpose of teaching and instruction in many countries is developing thinking skills among their students in primary schools. A main goal of educators today is to teach students the skills they need to be critical thinkers. Instead of simply memorizing facts and ideas, children need to be engaged in higher levels of thinking to reach their fullest potential. Research has shown that these skills are teachable and learnable. Instruction in thinking skills promotes intellectual growth and fosters academic achievement. Robert Fisher, a leading expert in developing children's thinking skills, says that "thinking is not a natural function like sleeping, walking and talking". Thinking, he stresses, "needs to be developed" (Puchta , 2012: p.5-16).

Higher order thinking is said to be a complex thinking that requires effort and produces valued outcomes. These outcomes are not predictable because the process of higher order thinking is not mechanical. This makes higher order thinking hard to define. Nonetheless, it is possible to recognize higher order thinking and to teach it in the future. Higher order thinking skills include critical, logical, reflective, metacognitive and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. Successful applications of the skills result in explanations, decisions, performances, and products that are valid within the context of available knowledge and experience and that promotes continued growth in these and other intellectual skills (Puchta, 2012) .

Simon, (2013) indicates that, practicing higher order thinking (HOT) skills will give kids and teens the tools that they need to understand, infer, connect, categorize, synthesize, evaluate, and apply the information. They know how to find solutions to new and existing problems.

The strategies for teaching HOTs are necessary to respond accurately. Useful learning strategies that include rehearsal, elaboration, organization, and metacognition should be specifically designed to teach HOTs (Wilson, 2010). For example, all Intel Education programs are designed to support teachers and students in the use of higher order thinking skills. In fact, the promotion of these skills is the central focus of the professional development curriculum ( Intel , 2006).

In addition many countries started to put plans for developing their student higher order thinking like Malaysia's experience (Rerajendran , 2001).

The researcher based on her short experience as a 6<sup>th</sup> grade teacher of English during the scholastic year (2010-2011) noticed that students in Gaza - Palestine face difficulties in acquiring thinking skills specially in reading classes. Reading is one of the four basic language skills that must be mastered in English language learning. By reading, students can gain information or verify their prior knowledge from many various kind of reading material. In learning reading, the students are expected to be able to comprehend text in order to gain the information from the written text,

This notice was confirmed by the results of a pilot study which, the researcher conducted to a sample of 6<sup>th</sup> grade English teachers in many schools at the beginning of the first semester of the scholastic year 2013-2014. Those results revealed that most students were weak in acquiring HOTS in English . Furthermore, the students had negative attitudes toward an English subject and this could be due to their poor achievement in English . Thus, it can be clearly seen that students in Palestine face a problem in learning the English curriculum in general and in acquiring HOTS in particular.

Moreover, the teachers seem not to be supportive enough to help students improve their higher order thinking skills. In addition, there was almost agreement among the English language teachers that there is a shortage in the HOTS exercises and they are not well-treated in students text books -English for Palestine- (Seif, 2012) and they really need new strategies to provide help in enhancing the higher order thinking skills among primary stages. Therefore, the researcher visited many websites searching for a solution for this problem and found that QAR strategy is used to promote thinking as it is a powerful strategy for improving reading comprehension and higher levels of thinking . Therefore, the researcher believed that experimenting it to enhance student HOTS in reading should be taken .

Now, QAR's creators, (Raphael and Kathy, 2006: 516 - 522), have written a comprehensive guide that reflects on two decades of classroom application and expands on the original thinking behind QAR. In this highly practical resource, they show how QAR provides a framework for organizing questioning activities and

comprehension instruction, how it aligns with state standards and assessments, and how one can easily integrate it across all the content areas. "The question answer relationship QAR strategy helps students understand the different types of questions. By learning that the answers to some questions are "Right There" in the text, that some answers require a reader to "Think and Search," and that some answers can only be answered "On My Own" students recognize that they must first consider the question before developing an answer. It helps students to think about the text they are reading and beyond it, too it inspires them to think creatively and work cooperatively while challenging them to use higher level thinking skills.

Students often follow an extremely literal or "in their head" approach when answering questions about what they have read. Understanding question-answer relationships helps students learn the kind of thinking that different types of questions require, as well as where to go for answers in the text. It encourages students to be more efficient and strategic readers. Teachers use questioning strategies to guide and monitor student learning and to promote higher-level thinking in their students. Teaching students the QAR strategy encourages teachers to improve the types of thinking they are requiring of their students (James, 2001).

QAR is all about thinking . It appears that students are learning how to take tests, not how to think. The QAR is not a test prep but it rather it is a powerful thinking strategy. QAR is a way to help students figure out how to go about answering questions based on all content area text . Students assume that every question's answer is directly stated somewhere in the text .They are looking for answers and spending too much of their time . QAR strategies help to end that problem .The Question Answer Relationships (QAR) taxonomy was created by (Raphael, 1986) in order to assist students in become more metacognitively aware and interacting with text. Students who learn with transactional instruction have the ability to orchestrate many strategies during a single reading task . Stafford, (2012)<sup>2</sup> and Cummins (2012:18) agreed that these students learn to be aware of their thinking as they read, understand the types of questions that they ask when reading, and monitor their understanding.

## **The Need For the Study**

Palestinian teachers should be aware of new strategies and their impact on improving students' HOTS ability and improving their attitudes toward English .This study is conducted for presenting a deep investigation which is needed now more than ever regarding dealing with strategies enhancing thinking skills especially higher order thinking. A lot of studies confirmed that there is a serious need to develop our students' acquisition of higher order thinking (Heong et al, 2011)<sup>2</sup>. The way to increase students' achievement is to improve questioning. Questioning really builds the bridge between literal and inferential understanding and content knowledge. The researcher believes that the student who has come up to a specific conclusion after analysis ,investigation and interpretation will be able to apply it and reach new principles, rules and theories while the student who is used to just receiving those from his teacher will hurt his mental abilities and thinking process. This belief agrees with that of Razoky& Elbahadly (2012.). On the other hand, there are many studies that have tried to investigate the positive effectiveness of QAR strategy on improving students' reading comprehension and got positive results (Raphael, 2006) and (Wagner, 2009). However, there are not many studies that focused on QAR strategy as a useful strategy to enhance higher order thinking. Here the researcher sees that there is an urgent need to investigate to what extent the use of QAR strategy can contribute into promoting higher order thinking skills among our students in primary stages. Therefore, using a new strategies not only eliminates achievement failure but at the same time opens opportunities for further development in the students mental abilities.

### **1-2 Statement of the Problem**

The purpose of this study was to examine the effectiveness of a QAR strategy to improve the higher order thinking skills of 6<sup>th</sup> graders. The researcher found that students of grade six in Gaza face difficulties in acquiring higher order thinking besides failure in achievement in English language tests and she believes that the way of thinking is one cause of this failure. There is a shortage in the HOTS exercises and they are not well-treated in students textbooks. The researcher came to these data through a pilot study conducted by the researcher for this purpose . These results are confirmed by the results of the studies conducted by many researchers (Simms

&Knezek , 2002), (Elmansour , 2011) , (Heong . et al , 2011)<sup>2</sup> , (Cristina, 2009) and (Seif , 2012).

### **1-3 Research Questions**

The problem is stated in the following major question:

**What is the impact of using QAR strategy on enhancing 6<sup>th</sup> graders higher order thinking skills in reading and their attitudes toward it?**

#### **The Following Minor Questions Emanated From the Above Major One?**

- 1-What are the higher order thinking skills that the 6<sup>th</sup> graders have to acquire?
- 2-What is the main characteristics of Q.A.R strategy?
- 3- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in a (pre- post) higher order thinking skills post test?
- 4- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group on the pre application of the attitudes scale and of mean scores on the post application?
- 5- Are there statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group on the post application of the attitudes scale and that of the control group?

### **1-4 Research Hypotheses**

- 1-There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in analysis skill domain as measured in a (pre- post) higher order thinking skills post test.
- 2-There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in synthesis skill domain as measured in a (pre- post) higher order thinking skills test.

3-There are no statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in evaluation skill domain as measured in a (pre- post) higher order thinking skills test.

4- There are no statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group on the pre application of the attitudes scale and these on the post application.

5- There are no statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group on the post application of the attitudes scale and these of the control group.

### **1-5 Purposes of the Study**

The study tries to:

1. Present Q.A.R strategy as an effective strategy for enhancing higher order thinking skills.
2. Investigate whether the Q.A.R strategy contributes to enhancing higher order thinking skills among 6th graders.
3. Explore whether the Q.A.R strategy helps 6th graders to built positive attitudes toward reading in English language .

### **1-6 The Significance of the Study:**

The significance of this study springs from the importance of developing our students' higher order thinking skills in all fields especially in reading English . Q.A.R strategy offers as an alternative to the existing traditional ones. Q.A.R strategy has been lately integrated in the field of language teaching reading in particular. To the best knowledge of the researcher, this study is the first study to be conducted on using Q.A.R strategy in English language in Palestine. For this reason, the study may be highly significant for :

#### **1-6 -1. Teachers:**

It may help teachers of English language to employ the Q.A.R strategy as a means for teaching higher order thinking skills.



### **1-6 -2. Supervisors:**

This study may draw supervisors' attention to the importance of conducting training courses to teachers for the purpose of enhancing their awareness of such useful strategies for teaching higher order thinking skills like Q.A. R strategy in teaching English reading skills in particular, other skills and any subject in general.

### **1-6 -3. Curriculum Designers:**

It may draw their attention to change, modify, organize and enrich English language curricula with a variety of higher order thinking skills which employ Q.A.R strategy to help learners to become effective and skilful thinkers.

### **1-6 -4. Students:**

It may help the students to become effective and skilful thinkers .In addition, it may provide students with a new way of thinking that helps them give the answer of any question easily and not just reading English but in other skills of English language and in other school subjects too .

### **1-6 -5. Researchers**

This study may lead to raise further future studies about using this strategy in different skills as listening, writing or speaking and in other school subjects too.

## **1-7 Limitations of the Study**

The study was applied within the following limitations:

- 1-7-1 It was a six-week study in the second term of 2013-2014scholastic year.
- 1-7-2 It was confined on the sixth grade female students enrolled at Beit Hanoun Elem Coed "A" School in the northern of Gaza which is run by the UNRWA.
- 1-7-3 It was limited to the topics of the 12 reading lessons in four units in English language textbook " English for Palestine 6".

1-7-4 The use of the strategy was implemented on 13-17 units in English language textbook "English for Palestine 6".

1-7-5 It was limited to the higher order skills in Blooms Taxonomy (analysis, synthesis, evaluation)

### **1-8 Variables of the Study:**

1-8-1 Independent variable : Q.A.R strategy as a teaching and learning tool

1-8-2 Dependent variables :

a-student higher order thinking skills (analysis ,synthesis, and evaluation)

b- Students' attitudes towards reading in English

### **1-9 Definition of Operational Terms:**

The researcher defines the following terms operationally

#### **1-9-1 Effect:**

It refers to the degree of change and improvement in students' higher order thinking skills in reading English language as a result of using the Q.A.R strategy and measured by eta square.

#### **1-9-2 QAR : ( question answer relationship)strategy**

The QAR (Question-Answer Relationship) strategy teaches students to categorize questions asked in the English for Palestine textbook (grade 6) according to *where* and *how* they find the answer to these questions. By studying the types of questions asked, students learn to seek answers quickly and accurately(Rafeal, 2006) .

#### **1-9-3 Higher Order Thinking Skills**

##### **1-9-3-1Analysis:**

It refers to the ability to break down a concept into its smaller parts. This process requires students to categorize information related to the text, guess meaning of word through context, recognize causes and effects, infer the author's attitudes, and compare between items related to a certain text ( Bloom, 1956).

### **1-9-3-2 Synthesis:**

It refers to the ability to form something new or compile objects from separate parts. This skill require students to summarize texts, retell the material using their own words, generate information related to the text, and predict events or solutions related to the text ( Bloom, 1956).

### **1-9-3-3 Evaluation:**

It refers to the ability to judge the value of certain objects. In this regard, students are to express their opinions toward situations in texts and conclude themes of texts( Bloom, 1956).

### **1-9-4 The Attitude :**

It refers to the positive or negative beliefs, feelings and reactions that the students hold towards reading in English in terms of enjoying reading in English ,appreciating the importance and value of learning reading ,and acknowledging the method of teaching reading & the role of the English reading teacher. This acceptance or refusal affects students' enjoyment in learning and practicing English reading . Besides, it is measured by the reading attitudes scale that has been specifically prepared by the researcher (Maharin,2009).

## **1-10 Summary**

This chapter provided a relevant introduction to the issue of thinking and higher order thinking skills .Besides, it emphasized the need for carrying out this study and highlighted the necessity of QAR strategy in teaching reading. It also introduced the study statement of problem, the purpose, the significance, the definitions of terms and the limitations of this study.

# **Chapter II**

## **Theoretical Framework & Previous Studies**

## **Chapter II**

### **Part 1: Theoretical Framework**

According to the purpose of this study, which aimed at investigating the impact of using(QAR) strategy on the sixth graders' higher order thinking in reading skills and their attitudes towards it. This chapter is divided into two main parts: The first part is a theoretical framework, which includes four domains: the first domain is the higher order thinking skills, the second domain is reading , and the third domain is the(QAR) strategy and the last domain is attitudes.

The second part discusses some previous studies that other researchers have conducted in concern firstly with higher order thinking skills and secondly with (QAR) strategy. Then the researcher presents her comments on those previous studies.

## **2-The First Domain: Higher Order Thinking Skills**

### **2-1-Theories Related to Learning and Higher Order Thinking Skills**

King& Rohani (nd,59-98) claims that no one has yet explained the process of thinking much better than Dewey, who described it as a sequenced chaining of events they mentioned that Dewey said "this productive process moves from reflection to inquiry, then to critical thought processes that, in turn, lead to a conclusion that can be substantiated by more than personal beliefs and images.

Thought can straighten out entanglements, clear obscurities, resolve confusion, unify disparities, answer questions, define problems, solve problems, reach goals, guide inferences, shape predictions, form judgments, support decisions, and end controversies. According to Dewey, thinking does not occur spontaneously but must be “evoked” by “problems and questions” or by “some perplexity, confusion or doubt.” The observations or “data at hand cannot supply the solution; they can only suggest it” Furthermore, it is this “demand for the solution” that steadies and guides the entire process of reflective thinking; the “nature of the problem fixes the end of thought, and the end controls the process of thinking”. Here are some theories for learning and thinking.

### **2-1-1 Piaget**

According to Piaget, the developmental stages are the key to cognitive development. School-age and adolescent children develop operational thinking and the logical and systematic manipulation of symbols. As adolescents move into adulthood, they develop skills such as logical use of symbols related to abstract concepts, scientific reasoning, and hypothesis testing. These skills are the foundation for problem solving, self-reflection, and critical reasoning (Smith, & Grossniklaus, 2001).

### **2-1-2 Bruner**

According to Bruner, as Smith (2002) states that learning processes involve active inquiry and discovery, inductive reasoning, and intrinsic motivation. Stages of cognitive development are not linear; they may occur simultaneously. Bruner introduced the “spiral curriculum” in which learners return to previously covered topics within the context of new information learned. Both Piaget and Bruner focus on active learning, active inquiry and discovery, inductive reasoning, intrinsic motivation, and linkage of previously learned concepts and information to new learning. Stages include enactive (hands-on participation), iconic (visual representations), and symbolic (symbols, including math and science symbols).

### **2-1-3 Bloom**

In each of Bloom’s three taxonomies (cognitive, affective, and psychomotor), lower levels provide a base for higher levels of learning. Comprehension and application form linkages to higher order skills; here, the learner uses meaningful information such as abstractions, formulas, equations, or algorithms in new applications in new situations. Higher order skills include analysis, synthesis, and evaluation and require mastery of previous levels, such as applying routine rules to familiar or novel problems. Higher order thinking involves breaking down complex material into parts, detecting relationships, combining new and familiar information creatively within limits set by the context, and combining and using all previous levels in evaluating or making judgments (Krathwohl 2002).

Intel (2006:1-3 ) offers a division for a Bloom's Taxonomy. According to Bloom's taxonomy, thinking tasks can be divided into six levels of increasing cognitive demand. The highest levels of his model represent the most sophisticated and meaningful thought processes, or higher-order thinking analysis ,synthesis and evaluation.

**2-1-3-1 Descriptions of the Major Categories in the Cognitive Domain** according to Bloom(1956):

**2-1-3-1-1 Knowledge.** *Knowledge* is defined as remembering previously learned material. This process may involve the recall of specific facts or complete theories, but all that is required is the rote memory of the appropriate information. Knowledge are presents the lowest and most basic level of learning. For example, reciting the preamble to the constitution is a knowledge-level outcome.

**2-1-3-1-2 Comprehension.** *Comprehension* is defined as the ability to understand the meaning of material. This process may be shown by translating material from one form to another form (words or numbers), by explaining material (interpreting or summarizing), by providing examples, or by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material and represent the lowest level of understanding.

**2-1-3-1-3 Application.** *Application* refers to the ability to use learned material in a new and concrete situation. This process may include the application of such things as rules, methods, concepts, principles, laws, and theories. As an example, most mathematics objectives which involve solving problems are at the application level.

**2-1-3-1-4 Analysis.** *Analysis* refers to the ability to break down a concept into parts. This process may include the identification of the parts and the analysis of the relationships between parts. Learning outcomes at the analysis level require an understanding of both the content and the structure of the material. As an example, asking students to compare and contrast two characters in a story is at the level of analysis.

**2-1-3-1-5 Synthesis.** *Synthesis* refers to the ability to form something new. This process may involve the production of a unique composition (theme or speech), a plan or proposal, or an original abstract idea. Learning outcomes in this area stress

creativity and originality. A creative activity such as making a diorama is **not** at the synthesis level unless the intended outcome behavior involves creativity.

**2-1-3-1-6 Evaluation.** *Evaluation* is concerned with the ability to judge the value of a statement or some material such as writing, music, or art. The judgments are to be based on criteria, and the student may determine the criteria or be given them. The student must be able to justify the judgment based on the criteria of all of the other categories plus value judgments.

#### **2-1-4 Gagné**

This theory stipulates that there are several different types or levels of learning. The significance of these classifications is that each different type requires different types of instruction. Gagné, & Wager( 1992) identify five major categories of learning: verbal information, intellectual skills, cognitive strategies, motor skills and attitudes. Different internal and external conditions are necessary for each type of learning. For example, for cognitive strategies to be learned, there must be a chance to practice developing new solutions to problems; to learn attitudes, the learner must be exposed to a credible role model or persuasive arguments. Gagne suggests that learning tasks for intellectual skills can be organized in a hierarchy according to complexity: stimulus recognition, response generation, procedure following, use of terminology, discriminations, concept formation, rule application, and problem solving. The primary significance of the hierarchy is to identify prerequisites that should be completed to facilitate learning at each level. Prerequisites are identified by doing a task analysis of a learning/training task. Learning hierarchies provide a basis for the sequencing of instruction.

According to Gagné, intellectual skills begin with establishing a hierarchy according to skill complexity. Within this structure, discriminations are prerequisites for concrete and defined concepts, simple rules, complex higher order rules, and then problem solving. Cognitive strategies may be simple or complex. Gagné's "nine events of instruction" refer to steps instructors should take in an effort to meet learning outcomes. Green ( 2003) summaries these as follows:

- **First**, it is imperative to gain students' attention.
- **Second**, instructors should make students aware of the learning outcome(s).



- **Third**, it is important to help students recall previously learned information which might be helpful in learning new material.
- **Fourth**, new material should be presented. After having done so,
- **Fifth**, is for instructors to provide students with learning guidance. For example, you might suggest an effective way for students to organize the new information.
- **Sixth**, students should be given a chance to demonstrate they've learned the information.
- **Seventh**, providing feedback that is corrective rather than final. Once feedback has been provided and any mistakes have been addressed,
- **Eighth** is assess performance, specifically, whether students have achieved your initial learning outcomes.
- **Ninth** the final event of instruction involves retention and transfer. Instructors should strive to reinforce learning and help students apply it to other situations.

### **2-1-5 Marzano**

To Marzano, the dimensions of thinking feed into dimensions of learning, both of which build upon contributions from other scholars and researchers. For example, Gagné refers to the generalizations that describe relationships between or among concepts as “rules” while Marzano calls them “principles”. Educators have used the dimensions of learning as a resource for instructional strategies, managing school improvement, planning instruction and assessment making systematic reforms, and defining what students must be able to do in order to solve problems and make decisions in many situations. Marzano & Pollock, (2001) emphasizes that there were nine instructional strategies that are most likely to improve student achievement across all content areas and across all grade levels. These strategies are :

**2-1-5 -1.** Identifying similarities and differences.

**2-1-5 -2.** Summarizing and note taking.

**2-1-5 -3.** Reinforcing effort and providing recognition.

**2-1-5 -4.** Homework and practice.

**2-1-5 -5.** Nonlinguistic representations.

2-1-5 -6. Cooperative learning.

2-1-5 -7. Setting objectives and providing feedback.

2-1-5 -8. Generating and testing hypotheses.

2-1-5 -9. Cues, questions, and advance organizers.

### **2-1-6 Glaser**

Glaser drew upon concepts articulated by Dewey and reported research from the 1930s and 1940s. Their work, together with contemporary research, shows the stability of several major concepts for higher order thinking. Glaser reported that the type of thinking required for problem solving originates in a perceived difficulty, state of doubt, or perplexity. It begins with “making acquaintance with the particular facts that create a need for definition and generalization,” in order to see “the correct difficulty to be overcome”, not with “definitions, rules, general principles, classifications, and the like” Furthermore, the way a problem is “apprehended or defined limits the kind of answers that will occur to the thinker. To get out of the rut requires a reformulation of the issue”. This perspective suggests that higher order thinking involves more than a simple hierarchy or continuum. The importance of dispositions like attitudes and habits of mind also come into play in steering the thinking process in the right direction or taking it off course through aberrations of analysis, selection, association, inference, generalization, and language comprehension(King& Rohani:59-98).

### **2-1-7 Vygotsky**

According to Lutz & Huitt ,(2004)Vygotsky seems to have consolidated major concepts of cognitive development.

- Cognitive development progresses as children learn; biological maturity accounts for “elementary processes” such as reflexive responses.
- When learning a specific skill, students also perceive the underlying principles.
- Social interaction and social culture play major roles in learning and cognitive development; children internalize knowledge most efficiently when others, such as teachers, parents, or peers, guide and assist them; significant people in an individual’s

life contribute to the development of “higher mental functions”; people’s cognitive processes function differently when working on their own versus working in groups.

- Everyone has a “zone of proximal development,” and asking certain questions or giving suggestions will move the individual toward potentially higher levels; such support helps students in solving problems until they can solve them independently and may include hints, questions, behavior modeling, rewards, feedback, and information.

## **2-2 -Definition of Higher Order Thinking Skills:**

According to King & Rohani( 1-32,59-98) Higher order thinking skills include critical, logical, reflective, metacognitive, and creative thinking. They are activated when individuals encounter unfamiliar problems, uncertainties, questions, or dilemmas. Successful applications of the skills result in explanations, decisions, performances, and products that are valid within the context of available knowledge and experience that promote continued growth in these and other intellectual skills .

Gardner ( 1993) report that in 1987, the National Research Council sponsored a project that attempted to synthesize all the many theories about higher-order thinking. The expressed goal of the project was to make recommendations about how to foster higher-order thinking in students. While lower-order thinking is more easily defined as mastering facts (such as being able to describe the parts of the water cycle) or completing a task with specific steps (such as being able to solve a two-variable equation), that study ultimately described higher-order thinking as thinking that is (or involves):

**2-2-1 “Non-Algorithmic”** Involving paths of action for solving problems that are not specified in advance (creative problem solving).

**2-2-2 Complex** Involving problem solving where multiple solutions are possible.

**2-2-3 Effortful** Involving considerable mental energy directed toward problem solving.

**2-2-4 Nuanced Judgments** Involving subtle, less-than-obvious decisions about strategies.

**2-2-5 Application of Multiple Criteria** Involving transferable of some (sometimes conflicting) criteria to the problem solving process.

**2-2-6 Uncertainty About What is Known** Involving problems that do not provide a clear starting point.

**2-2-7 Self-Regulation** Involving some degree of meta-cognition and self-awareness.

### **2-2-8 Imposition of Meaning**

Involving development and application of new theories onto sets of facts and problems Overall, “higher-order” thinking means handling a situation that you have not encountered before and is generally recognized as some combination of the above characteristics. It is thinking that happens in the analysis, synthesis, and evaluation rungs of Bloom’s ladder. By contrast, “lower-order thinking” is simple, reflex-like, transparent, and certain.

All of these definitions suggested that thinking is not an easy mental process. It needs efforts and a systematic techniques to solve problems .

## **2-3-Types of Thinking:**

Knowing how to think in any given situation - which type of thinking to employ - is a vital skill. The starting point is understanding that there are many different ways to think; and that how we think should be a matter of conscious choice. If how to think is a choice, what are the key types of thinking skill? Here are some of the most commonly used categories .

**2-3-1 Creative Thinking** -Illumine,(2014) define it as a general term for the ability to develop fresh perspectives and new ideas. There are many specific techniques available to aid the creative thinking process. While Cotton(1991:16-19)gives a definition for the creative thinking as the process of determining the authenticity, accuracy, or value of something; characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence. Also called "logical" thinking and" analytical" thinking.

**2-3-2 Critical Thinking** - this term is used in many different ways. Perhaps it is most commonly used to denote thorough or exhaustive thinking. According to Cotton (1991:16-19) Reasonable thinking is focused on deciding what to believe or do .The disposition to provide evidence in support of one's conclusions and to request evidence from others before accepting their conclusions .The process of determining the authenticity, accuracy and worth of information or knowledge. Lists of alternative definitions could be generated for other terminology commonly used in the thinking skills literature. In an attempt to come to terms with these definitional differences, these definitions are applicable. They include: Popular instructional model developed by the prominent educator Benjamin Bloom. The taxonomy categorizes thinking skills from the concrete to the abstract—knowledge, comprehension, application, analysis, synthesis, evaluation. The last three are considered higher order skills .Other types of thinking are defined by Illumine(2014) as follows :

**2-3-3 Logical Thinking** - the process of progressing a thought process in a linear way. It is probably the dominant thinking process in western society - and many others too.

**2-3-4 Parallel Thinking** - this is the process of avoiding group conflict by all adopting the same mode of thinking at the same time. The best known example of parallel thinking is De Bono's Six Thinking Hats. Each metaphorical (or physical) hat represents a different type of thinking.

**2-3-5 Structured Thinking** - another way of describing critical thinking; using templates and models to think exhaustively about something.

**2-3-6 Positive Thinking** - although often referred to as an attitude rather than a distinct thinking process, the inclusion of techniques such as CBT - cognitive behavioral thinking - adds weight and structure to positive thinking training courses.

**2-3-7 Strategic Thinking** - a widely used term and therefore one that is used in many different ways. Typically, it is used to refer to the sort of thinking required by organizations to set direction rather than individual tactics to deliver results.

**2-3-8 Divergent Thinking** - in the creative thinking process, divergent thinking refers to the thinking required to generate an unfiltered pool of ideas.

**2-3-9 Convergent Thinking** - once ideas have been generated, they need to be assessed and developed into workable proposals. This process is often referred to as convergent thinking.

**2-3-10 Associative Thinking** - the process of linking one thought or idea to another. Associative thinking can be used for creative thinking purposes and has a key role in most memory techniques.

**2-3-11 Metacognition** :Cotton, (1991:16-19) defines it as the set of basic and advanced skills and sub skills that govern a person's mental processes. These skills consist of knowledge, dispositions, and cognitive and metacognitive operations ,in which students are given a "discrepant event" and practice information-gathering skills to resolve the discrepancy asking higher order question.

**2-3-12 Thinking Skills Transfer**; it is the ability to apply thinking skills taught separately to any subject. Gains on learning and intelligence measures were noted in response to providing instruction in a variety of specific techniques, including: **study skills**: such as decision making, problem solving, fluency, observation, exploration, classification, generating hypotheses ,creative and critical thinking skills, including awareness, self-monitoring, and self-regulating (Cotton, 1991:16-19).

**2-3-13 Computational thinking**: Dede, et al,(2013) mention that computational thinking involves solving problems, designing systems, and understanding human behavior, by drawing on the concepts fundamental to computer science... It represents a universally applicable attitude and skill that suits everyone, not just computer scientists, would be eager to learn and use” .finally one type of thinking is my concern in this study which named by King& Rohani (**Higher Order Thinking** ).

These are different types of thinking and the reader of any text should use the most appropriate one for his purpose.

## **2-4-The Possibility of Teaching Thinking**

There were several rigorous surveys of the impact of different teaching methods and programs in the last decade. These provide convincing evidence for the value of teaching thinking skills. The emerging consensus, supported by some research evidence, is that the best way to teach thinking skills is not as a separate subject but through ‘infusing’ thinking skills into the teaching of content areas. Thinking skills are often seen as attributes of individuals, perhaps the property of individual brains. However, there has been a major shift in both philosophy and psychology towards seeing thought as essentially social not individual. The increasing status given to the ideas of educational psychologist Vygotsky supports this tendency in psychology. He claims that individual thought is a product of the social and historical context .In particular ,Vygotsky claims that language is a tool-system that mediates the development of thought. This fits well with research on distributed cognition, which suggests that cognition is not located in individuals so much as in systems that, while they may include people, also include objects and technologies The roots of critical thinking are not necessarily individualist. John Dewey, an advocate of teaching thinking, saw thinking as a product of social interaction and teaching thinking as a way of contributing to the creation of a better society (Wegerif,2006: 3-14).

## **2-5- The Importance of Teaching Higher-Order Thinking Skills**

Gardner & Howard(1993) affirming that we push toward higher-order thinking skills in the classroom because they have enormous benefits for our students. The reasoning here is similar to the rationale for pushing knowledge into our long-term memory. First, information learned and processed through higher-order thinking processes is remembered longer and more clearly than information that is processed through lower-order, rote memorization. Consider ,for example, the difference between memorizing a formula and explaining the derivation of the formula. Or, the difference between memorizing the definition of a new word and internalizing strategies for discerning the probable definition of the word from its context. Or, the difference between mere memorization of the multiplication tables and a deeper understanding that the multiplication tables represent short cuts for addition. Or, the difference between reciting the events included in a history textbook and drawing inferences from a number of historical documents. In each case, a student who has the latter-type

of understanding will carry that knowledge longer. Moreover, the student with the deeper conceptual knowledge will be better able to access that information for use in new contexts. This may be the most important benefit of high-order thinking. Knowledge obtained through higher-order thinking processes is more easily transferable, so that students with a deep conceptual understanding of an idea will be much more likely to be able to apply that knowledge to solve new problems.

## **2-6- Thinking Skills in the Young Learners' Require Development**

According to Puchta(2012), People do not necessarily become wiser as they become older. Some children are lucky because they learn important thinking skills from their parents or other people. This works especially well when parents take the child seriously, engage them in meaningful conversations, inspire their imaginations, ask them questions that get them to think and so forth. Other children are less lucky as they do not have such a nurturing environment that fosters their cognitive development. However, both children from brain-friendly families and others who come from less supportive contexts will profit significantly from a teaching method that takes the development of their thinking skills seriously. The philosopher Matthew Lipman noticed a lack of reasoning skills in many children, and started a movement to involve children in philosophy, an approach that has spread to many countries of the world. He used the following metaphor to stress the need to systematically develop a child's thinking skills: when we compare a car mechanic with an average person who could never repair their own car, the difference is not that the car mechanic knows how to use tools such as a hammer, a screwdriver, pliers, or a wrench. Most average people know how to do that too, yet they would fail hopelessly if they were to try to repair their car engine. What's different between them and the car mechanic is not the knowledge of how to use a hammer, a screwdriver or a wrench. What the car mechanic knows, and what average people don't, is how to sequence the use of these tools in a way that leads to the planned outcome. The car mechanic knows what he is doing, and why he is doing it; and when what he is doing does not give him the planned outcome, he keeps trying to come up with alternative strategies that are bound to lead to eventual success.



## **2-7- Combination of Thinking Skills:**

As happens every day in our personal and professional lives, each of these real-world purposes requires a combination of thinking skills. Puchta (2012: 5-16) believes that when there is a problem we need to solve, we first of all need to assess what the actual problem is. We need to use our senses in order to get an accurate idea of what the problem is before we can start thinking of possible solutions. Once we know what the problem encompasses, we then need to envisage clearly the objectives we want to achieve, and how we can get there. In order to do that, we need to think of the consequences of possible scenarios or actions, and when we get stuck we need to think creatively (and often 'out of the box'). Finally, we need to be able to evaluate our actions.

## **2-8-Developing Higher Level Thinking:**

The importance of higher-order thinking makes it a priority in our classroom, but how does one teach towards higher-order thinking? How does one foster the kind of deep conceptual understanding that is transferable to various academic contexts and, perhaps more importantly, to real-world problems?

Limbach & Waugh (2009: 1-8) put five thinking steps that can be implemented in virtually any teaching or training setting to active learning environment.

### **2-8-1 Step One: Determine Learning Objectives**

Considering the importance of a course, its placement in a program, and its role in providing a base of knowledge, a teacher should carefully identify key learning objectives that recognize what students should know.

### **2-8-2 Step Two: Teach Through Questioning**

Questioning is a vital part of the teaching and learning process. The art of questioning begins with establishing what is known and allows the teacher to extend beyond ideas and understandings. Questioning techniques that can be used can be categorized in a number of different ways. One simple method is to use the general categories of convergent and divergent questions. Convergent questions seek one or more very specific correct answers, while divergent questions seek a wide variety of correct answers. Convergent questions apply to Bloom's lower levels of *Applying*. Divergent

questions apply to Bloom's higher levels of *Creating*; and are generally open encouraging higher level thinking To most effectively encourage student participation, teachers must become highly skilled questioners.

### **2-8-3 Step Three: Practice Before Assessment:**

To make learning more active, teachers need to add experiential learning and opportunities for reflective dialog. For students to participate in higher level thinking, they must pose arguments, state opinions, and critique evidence using primary and secondary sources. Practice is necessary to master any skill; students must have the opportunity to practice the knowledge, skills, attitudes, and behaviors that will be evaluated.

### **2-8-4 Step Four: Review, Refine, and Improve.**

Teachers should strive to continually refine their courses to ensure that their instructional techniques are in fact moving students toward critical thinking. Students become responsible for their own learning when teachers monitor class activities, create a supportive environment, and carefully track student participation. Collecting feedback from students about what they have, or have not learned, may present the need to offer opportune need of improvement. Creating a classroom environment conducive to discussion in which all students feel good about participating is a very important step to continually refine their courses to ensure that their instructional techniques in fact develop students higher level thinking skills.

### **2-8-5 Step Five: Provide Feedback and Assessment of Learning.**

Feedback, like assessment, compares criteria and standards to student performance in an effort to evaluate the quality of the work what is to be assessed; it is imperative that students first understand what will be assessed. Next, students should be provided with constructive and relevant feedback by the teacher and peers, as well as assessing their own performance. Student feedback and assessment provides an immediate assessment process in evaluating instructional techniques, student achievement, specific learning activities, and the course departmental program. Kanter (2014) see that teacher feedback, like assessment, can be used to evaluate the student's quality of work. However, the quality of student learning and performance, rather than to grade the performance, and more importantly, it has the potential to

help students learn how to assess their own performance in the future. Feedback allows the teacher and student(s) to engage in dialogue about what distinguishes successful performance from unsuccessful performance as they discuss criteria and standards .

Applying these five steps in a good way can activate the teaching environment and make the students engage in all tasks. So, the teacher should start with the easy questions then the difficult one .He should also support the student, cooperate with other teachers and plan well for his class.

### **2-9 Teach Skills Through Real-World Contexts.**

Because higher-order thinking is difficult after all, you are asking students to make decisions, rather than simply follow a prescriptive path it will help your cause if you build motivation for the tasks you have developed “getting inside your students’ heads.” Successful teachers think carefully about how students will hear and receive information, and they consider the various contexts within which their students could use a new skill or knowledge.

#### **2-9-1-Vary the Context in Which Students Use A newly Taught Skill.**

Another prerequisite for higher order thinking that is flexible approaches to problem solving. In addition to an emphasis on one real world application of skills, a teacher should work to introduce students to a variety of real-world contexts in which a particular skill is used. The more settings in which a student uses some new element of knowledge, the more the student internalizes the deeper conceptual implications and applications of the knowledge. By coming at a skill from many different angles, you will loosen the contextual grip that a student’s mind may have linking a particular skill with a particular circumstance.

#### **2-9-2 Throughout Your Instruction, Take Every Opportunity to Emphasize the Building Blocks of Higher-Order Thinking.**

Teach content in ways that require students to:

##### **2-9-2-1 Build Background Knowledge.**

##### **2-9-2-2Classify Things into Categories.**

**2-9-2- 3 Arrange Items Along Some Dimension.**

**2-9-2- 4 Make Hypotheses.**

**2-9-2- 5 Draw Inferences.**

**2-9-2- 6 Analyze things into their components.**

**2-9-3 Encourage Students to Think About the Thinking Strategies they are Using.** That is, when a student is using context-clues to find the meaning of a word, the student should recognize and think about that strategy as well as the fruits of that strategy. encourages students to:

- Think analytically about problem definitions (“What do I have to accomplish? What am I allowed to do? What skills can I transfer to this problem? What information is relevant to the problem?”)
- Think about planning (“How should I approach this problem? What additional resources or information do I need?”)
- Purposefully allocate time and energy “How do I prioritize my tasks in order

to most efficiently solve this problem?” Specifically, for a teacher, this means delineating and teaching specific problem-attack strategies, giving students time to ponder difficult answers for themselves, and modeling those strategies by thinking aloud to solve problems during guided practice.

Limbach & Waugh (2009:1-8) states that thinking skills provides teachers with an easy to implement method of moving toward a more purposeful and active-learning environment, which encourages higher level thinking.

According to Gardner (1993) the teacher know that his students are engaged in higher-order thinking when his students:

- Visualize a problem by diagramming it.
- Separate relevant from irrelevant information in a word problem.
- Seek reasons and causes.
- Justify solutions.

- See more than one side of a problem.
- Weigh sources of information based on their credibility.
- Reveal assumptions in reasoning.
- Identify bias or logical inconsistencies.

## **2-10- Practical Steps for Implementing Higher-Order Questioning .**

Gunning(2010:165) maintains that most teachers are familiar with Bloom’s taxonomy, which details different levels of questions that promote different levels of thinking . But what is the most effective way to implement higher-order questioning in your literacy block? Peterson& taylor( 2012:295-304) put the following several practical tips for implementing higher-order questioning .

**2-10-1**At first, “when teachers ask higher order questions, they may find that the questions are difficult for students to answer or that students only give one- or two-word answers. The teacher could then respond by modeling how to give a higher-order response”.

**2-10-2**Giving students support on these types of questions is critical. Probing follow-up questions such as “Please tell me more about that” can help draw out responses from reluctant students. Providing sentence stems (“I followed my dream when...”) can be of particular help for English language learners.

**2-10-3**Working with other teachers can be an important way to prepare to utilize higher-order questions. For instance, the authors detail a school where during weekly grade-level meetings, teachers would brainstorm a list of high-order questions for the common texts that their students were reading. Teachers also worked together to come up with a rubric for assessing and analyzing in the team how well students were responding. Cross-grade study groups are also an option.

**2-10-4** Plan well: “Think of questions that relate to the theme or author’s message and write two or three higher order questions related to that theme. For example, if the picture book or novel you are reading deals with the issue of friendship, you could ask questions such as: “What do you like to do with your friends? What happens when your friends don’t want to do what you want to do? Can we still be friends with

people who like different things than we do? Why or why not?” Also plan prompts for follow-up questions.

**2-10-5** Don’t give up or get discouraged , it can take considerable time for students to get strong at responding to higher-order questions, but they will get there.

### **2-11- Teaching Strategies**

Lessons involving higher order thinking skills require particular clarity of communication to reduce ambiguity and confusion and improve student attitudes about thinking tasks. Lesson plans should include modeling of thinking skills, examples of applied thinking, and adaptations for diverse student needs. Scaffolding (giving students support at the beginning of a lesson and gradually requiring students to operate independently) helps students develop higher order learning skills. However, too much or too little support can hinder development. Useful learning strategies include rehearsal, elaboration, organization, and metacognition. Lessons should be specifically designed to teach specific learning strategies. Direct instruction (teacher-centered presentations of information) should be used sparingly. Presentations should be short (up to five minutes) and coupled with guided practice to teach sub skills and knowledge.(King& Rohani: 1-32,59-98).

#### **2-11-1 Assessment**

Valid assessment of higher order thinking skills requires that students be unfamiliar with the questions or tasks they are asked to answer or perform and that they have sufficient prior knowledge to enable them to use their higher order thinking skills in answering questions or performing tasks. Psychological research suggests that skills taught in one domain can generalize to others. Over long periods of time, individuals develop higher order skills (intellectual abilities) that apply to the solutions of a broad spectrum of complex problems. King& Rohani ( 1-32,59-98) provides.

Three item/task formats that are useful in measuring higher order skills:

- (a) selection, which includes multiple-choice, matching, and rank-order items;
- (b) generation, which includes short- answer, essay, and performance items or tasks
- (c) explanation, which involves giving reasons for the selection or generation responses. Classroom teachers recognize the importance of having students develop

higher order skills yet often do not assess their students' progress. Several performance-based models are available to assist them in teaching and assessing these skills.

## **2-11-2 Instructional Communications**

To reduce the risks of ambiguity and confusion and improve student attitudes about thinking tasks, the teacher should provide students clear instructions for assignments. For this reason, careful lesson planning is essential. Factors to consider in lesson planning include organization of activities, clarity of explanations, modeling of thinking skills in action, examples of applied thinking, feedback on student thinking processes, instructional alignment of objectives and activities, and adaptations for diverse student needs.

### **2-11-2-1 Strategies Contributing to the Particular Kinds of Instructional Communications Necessary for Developing Higher Order Thinking Skills:**

**2-11-2-1 -1.** Align learning goals, objectives, content ideas and skills, learning tasks, assessment activities, and materials and aids.

**2-11-2-1 -2.** Establish organized activities and routines.

a. Prepare a task analysis of the thinking skill to be learned: identify the particular thinking skill to be learned, the prerequisite knowledge and skills, the sequence of related sub skills, and the readiness of students to learn (diagnosis of prerequisite knowledge and skills).

b. Prepare sample problems, examples, and explanations.

c. Prepare questions that go beyond simple recall of factual information to focus on advanced levels of comprehension, such as How? Why? and How well?

d. Plan strategies for diagnosis, guidance, practice, and remediation.

e. Explain and follow established routines, such as starting on time and following the planned sequence of activities.

f. Convey enthusiasm, genuine interest in a topic, warmth, and Scaffolding involves giving students support at the beginning of a lesson and then gradually turning over

responsibility to the students to operate on their own This limited temporary support helps students develop higher order thinking skills. It functions in much the same way that scaffolding does when providing safety and access for a window washer or painter. Students differ in the ways that they organize knowledge and events in their memories (also known as their “schemata” or “script knowledge”). These differences influence how they understand current information and events and are “partially explained by cultural background” ,but are not fixed.(King& Rohani: 1-32,59-98) .

### **2-11-3 Direct Instruction**

Direct instruction, involving teacher-centered presentations of information, generally does not work well for developing higher level thinking skills. Nevertheless, the following strategies, as 'Olio(2007) illustrate, can make direct instruction more effectively.

A. Limit direct teaching methods to the introduction of strategies and skills.

B. Combine direct instruction with guided practice to teach students well-structured sub skills and knowledge, such as teaching the learning strategies of rehearsal, elaboration, organization, monitoring, or metacognition.

C. Avoid long lectures and use mini lectures instead. Keep lectures very short (up to five minutes). The amount learned from a lecture decreases as the length of the lecture increases. Mini lectures should be even shorter and slower for younger.

### **2-11-4 Questioning Strategies**

Seifi& Roohbakhsh (2013)mentions that the questioning technique has an essential role in developing thinking skills. To generate higher order thinking processes, questions must elicit answers that have not already been presented. Planning the questions in advance of actual learning time helps assure questions go beyond simple recall of information. Recalling the steps in a major procedure or skill may be useful, but memorization of steps does not help the learner understand why or how the steps should be used, nor does it help the learner apply the steps in a problem situation.

#### **2-11-4-1 Questioning as Thinking: Using Questions to Guide Disciplinary Reading:**

Wilson(2010)has claimed that “Question asking and answering can be viewed as the strategy that drives all of the other strategies. In other words, it is the process of



asking and then answering questions of oneself and the text that brings the other strategies to life. What differs from strategy to strategy is the type of questions one asks of oneself or the text. Thus, helping students develop the ability to ask and answer questions of themselves and the text before, during, and after reading is an important part of the process of becoming a strategic reader.”The components of questioning as thinking questioning as thinking is: Asking questions during reading that activate prior knowledge, connect texts, and monitor understanding. Responding to questions during and after reading by thinking about the source of information for a response, the content of the response, and the strategies necessary to respond .Questioning as thinking is a metacognitive framework for teachers and students to incorporate strategies for asking and answering questions.

#### **2-11-4-2 Question to Prompt Discussion:**

Ruday (2009) prepared a series of questions that begin with less complicated content that eventually leads to more complex content. Present questions with just enough information to encourage students to think deeply and form a meaningful answer. Instead of expecting one person to answer the question, ask students to pair up and discuss the question and prepare a shared answer this allows them to talk about and share their collective knowledge with the class. Avoid using language that is ambiguous or not yet relevant to course content. Do not assume students know the terminology.

Asking vague questions by virtue of ambiguous or out-of-context language may elicit vague answers. Therefore, questions should be definite and unmistakable. Using questions in the classroom can help students engage with course content, the instructor, and other students. Good instructor-generated questions can also guide students in developing better answers and help them to form questions of their own.

#### **2-11-5 Team Activities**

Group work is a general teaching strategy where students work together in face-to-face interaction without direct teacher supervision to achieve a common goal. It is used to shift students away from passive learning to active one . Bowering (2007) elaborate the main benefit of group work is that students are actively engaged in learning .Group work that activates the students’ prior knowledge and face-to-face interaction enables students to build on the ideas of others and to construct

knowledge. They must bring ideas into their own context, learn how to ask questions and interrogate the topic of discussion .An “outside in” learning process develops as ideas are built collaboratively and then internalized. Some students may model the interrogation process, recognize the outcomes of cooperative learning as being active learning, problem solving, student engagement and relationships .Groups are more than just a collection of individuals, and groups typically go through various stages. Members of groups can take on particular behavioral roles, depending on their backgrounds, experiences and individual learning style preferences.

Dede (2013)indicate that group size must be limited to six or fewer for group work to remain manageable and focused. Before they can work well in teams or groups, students must learn skills such as listening carefully, maintaining focus, and providing support and encouragement. Students must also receive challenging tasks, encouragement to stay on task when grappling with open-ended questions, and ongoing feedback about their progress. Team or group work facilitates knowledge construction through social interaction. Team and group work profit from careful strategic planning, including development of tasks, group procedures, materials, and assessment methods. Student performance improves with monitoring of student activities and minimized transitional periods from one activity to another .The forms of group work found to be effective for the development of thinking skills include student discussions, peer tutoring, and cooperative learning. In any of these situations, using introductory activities to develop rapport or “warm up” for the team or group can facilitate group interaction. At the start of a group, use some team-building activities such as name-learning games with follow-up quizzes on naming partners .Use additional time for students to do getting-to-know-you interviews (interests or hobbies) or “something that no one else knows about me” activities for group members. Use this information to introduce group members to the rest of the class.

### **2-11-6 Computer Mediation**

Computer-mediated communication provides opportunities for access to remote data sources, collaboration on group projects with students in other locations, and sharing of work for evaluation or response by other students and support collaborative learning (stahl,2002). Computer-assisted instruction (CAI) and computer-based

instruction (CBI), when combined with regular instruction, “improve students’ attitudes, motivation, and academic achievement”(Thadphoothon,2005).

In addition Burns, (2006:4,15,35,85) suggests some different strategies for learning thinking

### **2-11-7 Strategy for Determining Cause and Effect**

To be good at determining causes and effects, one must identify the event or action to be analyzed and decide whether it is more important to determine the cause or the effect. The identification of related events or actions needs to be undertaken with an open mind. Important causes or effects can be overlooked if all aspects of the situation are not considered.

### **2-11-8 Strategy for Making a Decision**

This perceptual stage requires students to make a succinct statement of the goal or need that will guide the subsequent brainstorming session to identify all possible alternatives that might answer the need. It is important that students keep an open mind during this alternatives generation stage and refrain from evaluating the alternatives. The ability to recognize the need to make a decision also depends upon some prior knowledge with the content area that is the focus of the decision.

### **2-11-9 Strategy for Making Comparisons and Contrasts**

To be good at the skill of comparing and contrasting, one must determine the purpose for comparing and contrasting, decide how many items or events should be compared and contrasted, and identify important attributes to observe .The extent of these comparisons and contrasts depends on the amount of information that students know about the object or concept under consideration.

### **2-11-10 Strategy for Classifying**

To be a good classifier , one must decide what the purpose is for the classifying activity and which attributes should be used to organize the groups. Keeping an open mind during the classification activity allows us to find additional and valuable data that were not considered during the initial stages of setting attributes and listing data may be used to form new groups midway through the process.

### **2-11-11 Strategy for Observing**

To be a good observer, one must decide what the purpose is for making an observation and which factors (or attributes) should be observed. Keeping an open mind during the observation also allows us to find additional and valuable data that were not considered during the initial stages of purpose setting. For example, penicillin was discovered because Fleming kept an open mind and gathered additional data when he observed a contaminated Petri dish.

### **2-11-12 Strategy for Making a Prediction**

To be an effective forecaster, one must determine the purpose for making the prediction. This purpose will help students select the appropriate attributes to observe and identify the data or information to be collected. It also guides students to consider not only **what** data will be collected, but **how** and **when** the data be collected. This anticipatory thinking increases the chances of the prediction .

## **2-12- Families and Out-of-School Educators Can Encourage Higher Order Thinking**

Simon,(2013)points out that families and out-of-school educators can play a significant role in encouraging higher order thinking with their kids and teens, even when having a casual conversation. Asking open-ended questions that don't have one "right" answer gives children confidence to respond in creative ways without being afraid of being "wrong." After reading a book together, a parent might ask their child a question such as: "If you were that character, how would you behave ?" rather than something like "What was the main character's name in the book?".Be prepared to respond to your child's answers with even more thought-provoking questions to continue to encourage higher levels of thinking, also opening up the lines of communication between parent and child.

### **2-13 Summary**

Lessons involving higher order thinking skills require particular clarity of communication to reduce ambiguity and confusion and improve student attitudes about thinking tasks. Lesson plans should include modeling of thinking skills, examples of applied thinking, and adaptations for diverse student needs. Scaffolding

(giving students support at the beginning of a lesson) helps students develop higher order learning skills. However, too much or too little support can hinder development. Useful learning strategies include rehearsal, elaboration, organization, and metacognition. Lessons should be specifically designed to teach specific learning strategies. Direct instruction (teacher-centered presentations of information) should be used sparingly. Presentations should be short (up to five minutes) and coupled with guided practice to teach sub skills and knowledge. Providing sincere, immediate, specific, and correct feedback should inform learners of their progress. Based on what is mentioned about higher order thinking skills, the researcher got benefit from them to construct HOTS test and helped her to construct the observation card too.

## **The Second Domain: Reading**

### **2-2-1 The Definition of Reading?**

Reading is a conscious and unconscious thinking process. The reader applies many strategies to reconstruct the meaning that the author is assumed to have intended. The reader does this by comparing information in the text to his or her background knowledge and prior experience. (Beatrice & Mikuleey, 2008) while (Alyousef, 2005) define reading as an “interactive” process between a reader and a text which leads to automaticity or (reading fluency). In this process, the reader interacts dynamically with the text as he / she tries to elicit the meaning and where various kinds of knowledge are being used: linguistic or systemic knowledge (through bottom-up processing) as well as schematic knowledge (through top-down processing). Other definition of reading by Ko3ak & Abryct (2011) is that reading is a complex activity that involves both perception and thought. Reading consists of two related processes: word recognition and comprehension. Word recognition refers to the process of perceiving how written symbols correspond to one’s spoken language. Comprehension is the process of making sense of words, sentences and connected text.

### **2-2-2-Why Reading**

Jeffrey (2001:p63-37) provides an answer for this questions by mentioning that we read for lots of reasons, from profound to practical. We read to discover ourselves, for enjoyment, as a means to a college degree, to find a job, to find our way in an

unfamiliar city . it's fair to say that we read because we want to inquire about something important to us. When students read to inquire, it's easier to teach them processes of reading because they are motivated to read. As a teacher, you become someone giving them strategies that will help them to do their work .

### **2-2-3-Selecting Reading Materials**

Jeffrey( 2001:p63-37) adds that "a lot of time and energy is spent deciding what kids should read .Before we make such a decision ,we should think about *why* kids might want to read about atopic or issue and negotiate it with them. Once we have a topic, then we can think about the kinds of texts we should read . We can consider the reading strategies the kids will need to be able to read these texts, and the activities that will give students practice with these strategies".

### **2-2-4- The Importance of Reading**

Reading is an important way to gain information and will underpin much of your academic study including researching and writing assignments, revising for exams and following up on information taught in lectures. Most academic reading is motivated by the need to find and understand information and develop ideas and arguments. Furthermore, Alyousef, (2005) shows that reading component of an English language course may include a set of learning goals for:

- the ability to read a wide range of texts in English. This is the long-range goal most teachers seek to develop through independent readers outside EFL/ESL classroom.
- building a knowledge of language which will facilitate reading ability.
- building schematic knowledge.
- the ability to adapt the reading style according to reading purpose (i.e. skimming, scanning).
- developing an awareness of the structure of written texts in English.
- taking a critical stance to the contents of the texts.

Nesall (2005)supposes that, for many new readers, the process of learning to read is

mysterious; some learners may think that reading is simply about being “intelligent.” Students can begin to understand that there are distinct but integrated skills involved in reading. By becoming more reflective about the components of the reading process, students can begin to analyze their reading strengths and needs, learn about strategies for increasing their reading proficiency, and articulate their purposes and goals for reading in their lives as family members, community members, workers, and lifelong learners.

### **2-2-5-The Purpose of Reading.**

The purpose of reading is to connect the ideas on the page to what you already know. If you don't know anything about a subject, then pouring words of text into your mind is like pouring water into your hand. You don't retain much. For example, try reading these numbers:

7516324 This is hard to read and remember.

751-6324 This is easier because of chunking.

123-4567 This is easy to read because of prior knowledge and structure.

Similarly , if you like sports , then reading the sports page is easy. You have a framework in your mind for reading, understanding and storing information (Martain,1991).

Reading purposes could be categorized as the following :

### **2-2-5-1 Improving Comprehension.**

Reading comprehension requires motivation, mental frameworks for holding ideas, concentration and good study techniques.

### **2-2-5-2 Develop a Broad Background.**

Broaden your background knowledge by reading newspapers, magazines and books. Become interested in world events.

### **2-2-5-3 Know the Structure of Paragraphs.**

Good writers construct paragraphs that have a beginning, middle and end. Often, the first sentence will give an overview that helps provide a framework for adding details. Also, look for transitional words, phrases or paragraphs that change the topic.

### **2-2-5-5 Identify the Type of Reasoning.**

Does the author use cause and effect reasoning, hypothesis, model building, induction or deduction, systems of thinking?

### **2-2-5-6 Anticipate and Predict.**

Really smart readers try to anticipate the author and predict future ideas and questions. If you're right, this reinforces your understanding. If you're wrong, you make adjustments quicker.

### **2-2-5-7 Look for the Method of Organization.**

Is the material organized chronologically, serially, logically, functionally, spatially or hierarchically?

### **2-2-5-8 Create Motivation and Interest.**

Preview material, ask questions, discuss ideas with classmates. The stronger your interest, the greater your comprehension.

### **2-2-5-9 Pay Attention to Supporting Cues.**

Study pictures, graphs and headings. Read the first and last paragraph in a chapter, or the first sentence in each section.

### **2-2-5-10 Highlight, Summarize and Review.**

Just reading a book once is not enough. To develop a deeper understanding, you have to highlight, summarize and review important ideas.

### **2-2-5-11 Build a Good Vocabulary.**

For most educated people, this is a lifetime project. The best way to improve your vocabulary is to use a dictionary regularly. You might carry around a pocket dictionary and use it to look up new words. Or, you can keep a list of words to look up at the end of the day. Concentrate on roots, prefixes and endings. Before starting any reading, it is important to establish a purpose. Why are you reading? Is it to find a number in the phone book or the time for a movie? Maybe it's to find the main idea of a short story or to chart the development of a character throughout a novel. In any



case the purpose is what you, as the reader, hope to accomplish by the end of the reading. Without a purpose, you can easily lose your train of thought and get to the end of a reading without ever knowing what you've even read. Remember, it's a matter of not working harder but of working smarter. Knowing your purpose for reading allows you to find the answer you are looking for with the minimum amount of muss and fuss. In any reading text there are four basic reasons an author chooses to write something:

1. to inform or explain
  2. to entertain
  3. to persuade
  4. to enlighten or reveal an important truth
- Sometimes there is more than one purpose for the writing. Usually, however, the author has one important purpose in mind when writing. Recognizing the purpose of the writing and helping students understand this purpose is a vital first step in preparing students for reading any text(Martain,1991).

### **2-2-6-Types of Texts for Reading Instruction:**

There are six distinctly different types of texts as Cooper ( 2001) believes that can be used for reading instruction: wordless books; predictable texts; controlled high-frequency vocabulary texts; decodable texts; authentic literature; and created, easy-to-read texts. This is a brief description with major uses for each type of text. All texts can be used at all grade levels but some are more appropriate for beginning reading instruction.

### **2-2-6- Wordless Books**

Text composed only of illustrations or photographs. No print is given. A way to help Children develop a concept of themselves as readers, develop oral language , and develop self-expression.

### **2-2-6-1 Predictable Texts**

Texts that utilize a repeated pattern of some type. May be authentic literature or created text. Used as a way to introduce children to reading through shared reading and to provide practice through repeated readings.

### **2-2-6-2 Controlled High– Frequency Vocabulary Texts**

Text written specifically for beginning reading instruction using a core of high frequency words that have been carefully introduced . These provide practice in reading high frequency words .

### **2-2-6-3 Decodable Texts**

Text written using words that utilize decoding skills students have been taught. These provide practice and application of phonics and structural skills that have been taught.

### **2-2-6-4 Authentic Literature**

Stories and informational texts where no attempts have been made to control the words, patterns, or decoding elements used in the text. The text is in the original form written by the author. There are used for practice and application of reading once students have developed beginning decoding skills.

### **2-2-6-5 Created, Easy - to – Read Texts**

Stories and informational texts that have been written to control the level of difficulty and some aspect of skill application. There are used for practice and application of reading skills for students who may be experiencing difficulty in certain aspects of learning to read .

## **2-2-7- Types of Reading**

### **2-2-7-1 Effective Reading**

Reading for academic study can be different from reading for leisure. When reading a Novel, you would read the book from cover to cover but academic reading can be more of a selective process. You will often only read the chapters or pages that are relevant to the subject you are researching.

By reading effectively you will learn to question and survey the text you are reading to gain a better understanding of your subject. By improving your reading skills you

can reduce unnecessary reading time .Martin( 1991)emphasized that good readers monitor their attention, concentration and effectiveness. They quickly recognize if they've missed an idea and backup to reread it.

### **2-2-7-2 Critical Reading**

Critical reading is a further dimension of in-depth reading. Leicester, (2009) conducted that reading a text critically means that you do not accept what you are reading at face value. This does not necessarily mean that you should find fault with a text, but rather that you should question and judge the merit and worth of the information it contains. A number of inter-related processes are involved in critical reading. They are: interpretation, analysis, synthesis, and evaluation. Whether you use all, or only some of these processes will depend on both the particular reading situation, and your purpose for reading

The most characteristic features of critical reading are that you will:

- examine the evidence or arguments presented;
- check out any influences on the evidence or arguments;
- check out the limitations of study design or focus;
- examine the interpretations made;
- decide to what extent you are prepared to accept the authors' arguments, opinions, or conclusions.

### **2-2-7-3 Reading Fluency**

Reading fluency can be defined according to Beatrice & Mikuleey (2008) as reading fast with good comprehension and adjusting the reading rate to suit the purpose for reading. It is important to note that reading fluency does not refer to oral reading, however, because it is possible for someone to read a passage aloud fluently and not comprehend it at all. Fluency in silent reading promotes improved comprehension by allowing the student to read for ideas rather than for individual words.

### **2-2-7-4-Extensive Reading**

Extensive reading is a highly individualized approach to reading improvement. Students select their own books and read at their own pace. The teacher should guide

Students to select books at a level of comprehension that allows for “comprehensible input”. The emphasis is on the quantity of books read and the students’ enjoyment of their books. Students are never tested formally on their extensive reading. However, they are required to talk about the books they read in structured activities, including book conferences with the teacher, brief oral reports to the class, and discussions in small group settings (Beatrice&Mikuleey2008).

### **2-2-7-5-Intensive Reading**

It is called “reading for accuracy” . (Nováková ,2011 )describes intensive reading as a detailed study of text designed to train students in reading strategies .Scrivener defined intensive reading as “reading texts closely and carefully with the intention of gaining an understanding of as much detail as possible”. He also points out that it is usually a stop/start kind of reading where a pupil reads a text many times, and reassures himself/herself that s/he makes the interpretation of the text correctly Richards agrees with these two authors and emphasizes that when reading text this way, we want to gain maximum comprehension .

### **2-2-8- Ways of Reading Texts**

Michigin,2012 discusses some ways of reading texts:

#### **2-2-8-1“Skimming & Scanning”?**

Skimming & Scanning are a style of reading and information processing. There are some who argue that skimming and scanning is more of a searching technique than a reading strategy. But it all depends on the purpose for reading. For example, one could read for pure enjoyment, while in another situation, one could read for inquiring about information or to successfully complete a proposed activity/task.

#### **2-2-8-1-1What is “Skimming?”**

It is a strategy that can be taught to students to help them identify the main ideas in text. It is important to correlate “skimming” to reading, making it clear that it is not word-by-word reading. Rather it is three to four times faster than *normal* reading. Generally, skimming is used to get through text very quickly. Consequently, skimming is used when students have a lot of reading material to get through, or have been assigned a task in an activity that requires some quick reading first, prior to completing the task. Skimming has

also been used as a strategy in research when the student wants to determine if a text/article is a resource that can be used.

### **2-2-8-1-2 What is “Scanning?”**

Scanning is a skill that allows for students to search for key words/concepts/ideas. More often than not, the student knows exactly what he/she is looking for. So the assigned task is finding out specific information, such as finding the name of an individual in a telephone directory or looking for a word in a dictionary.

Freedman (2012 )mentions that "Scanning is basically skimming with a more tightly focused purpose: skimming to **locate a particular fact or figure**, or to see whether this text mentions **a subject you’re researching**. Scanning is essential in the writing of research papers, when you may need to look through many articles and books in order to find the material you need. Keep a specific set of goals in mind as you scan the text, and avoid becoming distracted by other material. You can note what you’d like to return to later when you do have time to read further, and use scanning to move ahead in your research project".

### **2-2-8-2 Specific Reading**

This strategy is usually employed in conjunction with skim reading. It is especially useful if you are looking for specific information which may be contained in a variety of books, journals or articles. The process is one of search and discovery. It requires you to skim read, locate, mark and then return turn to close reading. When doing this across a number of texts, you will need to reference the materials as you proceed.

### **2-2-8-3 In-depth Reading**

This is the most essential of all reading skills. It involves reading a text thoroughly in order to comprehend the ideas and arguments it contains. In-depth reading is consequently much slower than skim reading, and you may find that you need to read certain sections of a difficult text more than once.

### **2-2-8-4 Interpretation Reading**

When we read critically for interpretation, we read to discover meaning in a text, that is, to determine what conclusions can be drawn about the various messages the text contains. Sometimes, there is more than one possible interpretation, and in such cases

it is possible that our reading may be directed at the best, or most likely meaning. Interpreting a text will also frequently involve the processes of analysis and synthesis.

#### **2-2-8-5 Analysis Reading**

This is the process by which we examine the way the ideas and messages in a text fit together to create the overall meaning. When analyzing a text ,we focus on:

- Identifying assumptions (the hidden values that underlie what a writer is saying) e.g. that everyone who cleans their teeth uses toothpaste.
- The structure of the argument (the development and sequence of ideas, the relationship between ideas, whether the argument is inductive or deductive);
- The relationship between evidence/data and argument (whether the evidence supports and illustrates the argument, and whether it supports any conclusions that are drawn).

#### **2-2-8-6 Synthesis Reading**

Synthesis usually occurs in conjunction with analysis, and involves the drawing together of the results of the analysis into a conclusion on which to base an interpretation or evaluation.

#### **2-2-8-7 Evaluation Reading**

This is a process by which we establish the worth or merit of a text. Evaluation is a higher order process that involves all of the other processes described so far (interpretation, analysis, and synthesis). When evaluating a text we attempt to look at the ideas and messages in a broader context. We might say - this is a good argument, but is it worth anything, does it have any merit? We would then use our knowledge of the subject or field, or of competing arguments, to establish the merit or worth of the argument.

#### **2-2-8-8 Bottom- Up Reading& Top Down Reading**

There are also two ways of reading texts ,Jo Anne &Vacca (2006) differentiate between Bottom- up reading& Top down reading in the following table

Table(2-1)

<b>Aspect</b>	<b>Bottom- up reading</b>	<b>Top-down reading</b>
<b>Relationship of word recognition to comprehension</b>	Believe students must recognize each word in a selection to be able to comprehend the selection.	Believe students can comprehend a selection even when they are not able to identify each word.
<b>Use of information Cues</b>	Believe students should use word and letter–sound cues exclusively to identify unrecognized words.	Believe students should use meaning and grammatical cues in addition to letter–sound cues to identify unrecognized words
<b>View of reading</b>	Believe reading requires mastering and integrating a series of word identification skills.	Believe students learn to read through meaningful and authentic activities in which they read, write, speak, and listen.
<b>Units of language emphasized instructionally</b>	Emphasize letters, letter–sound relationships, and words.	Emphasize sentences, paragraphs, and text selections.
<b>Where importance is placed instructionally</b>	View accuracy in identifying words as important	View reading for meaning as Important.
<b>Assessment</b>	Think students need to be assessed on discrete skills	Think students need to be assessed on the kind of knowledge constructed through reading

## **2-2-9- Stages of the Reading Process:**

According to Michigin(2012) the three stages of reading is :

- 1) planning for reading
- 2) reading
- 3) reflection on reading

### **2-2-9-1. Planning for reading**

Planning for reading will help you to give your reading a focus. It needs only take a few moments, and can be done by asking a few simple questions:

- What do I want to get out of reading this text?
- What ideas if any do I need to take into the reading?
- Why has this particular text been selected (by yourself, or others)?
- Can I subdivide the text into sections to read?
- What has skim reading told me about the text?

### **2-2-9-2. Reading**

Once you have developed a focus for reading, how you actually read a particular text will depend on the nature of the text. There is no one single approach , but there are some useful guiding principles. Where possible:

- Identify the starting point of the writer's argument - usually this will be found in the first or second paragraph;
- See if you can detect any assumptions the writer has made, or the start of a particular method of argument (an inductive or deductive argument);
- Identify important, or central, ideas (or any stated principles) in paragraphs as you read them (If there is more than one, try to work out which is the most important or central.
- Determine whether the ideas are connected or developed.
- Examine the consistency of the argument.
- Evaluate the evidence that has been presented in support of ideas or principles, and decide whether the evidence is relevant, persuasive, and convincing.
- Assess whether the conclusions are justified on the basis of the evidence that has been presented. After you have read carefully through the text in full, as suggested above, make some brief notes on:
  - Your understanding of the text;



- Your preliminary response to the ideas and arguments that have been presented.

### **2-2-9-3. Reflection**

Think about what you have read for a few minutes, then consider the following:

- Do you have any unanswered questions about the meaning of the text? If so, go back and skim read and/or read specific sections again.
- Are there any assumptions you have failed to recognize?
- Are you sure you understand how each section of the text is related?
- Are you able to make connections between the text and other material you have read?
- Do you consider your conclusions to be sound and unbiased? Are they limited or unlimited?

If you have been asked to answer specific questions on the text

- Do you feel you understand what responses the questions on the text require? If not, re-read the questions. If you are confident you understand the text, see whether the questions need to be interpreted.
- Do you need to cross-reference your responses to the questions? If so, make some notes on other material you wish to use.

Finally, use your notes and reflection to respond to any questions you have.

### **2-2-10-Active Reading Strategies.**

According to (McGraw,2008) Strategies are “the tools for active, self-directed involvement that is necessary for developing communicative ability. Strategies are not a single event, but rather a creative sequence of events that learners actively use.

The reader should choose the strategies that work best for him or that best suit his purpose :

- Ask yourself pre reading questions .For example: What is the topic, and what do you already know about it? Why has the instructor assigned this reading at this point in the semester?
- Identify and define any unfamiliar terms.
- Bracket the main idea or thesis of the reading, and put an asterisk next to it .Pay particular attention to the introduction or opening paragraphs to locate this information.

-Put down your highlighter. Make marginal notes or comments instead. Every time you feel the urge to highlight something, write instead. You can summarize the text, ask questions, give assent, protest vehemently. You can also write down key words to help you recall where important points are discussed. Above all, strive to enter into a dialogue with the author.

-Write questions in the margins, and then answer the questions in a reading journal or on a separate piece of paper. If you're reading a textbook, try changing all the titles, subtitles, sections and paragraph headings into questions.

- Make outlines, flow charts, or diagrams that help you to map and to understand ideas visually. See the reverse side for examples.

-Read each paragraph carefully and then determine "what it says" and "what it does." Answer "what it says" in only one sentence.

-Represent the main idea of the paragraph in your own words.

-To answer "what it does," describe the paragraph's purpose within the text, such as "provides evidence for the author's first main reason" or "introduces an opposing view."

-Write a summary of an essay or chapter in your own words. Do this in less than a page. Capture the essential ideas and perhaps one or two key examples. This approach offers a great way to be sure that you know what the reading really says or is about.

-Write your own exam question based on the reading.

-Teach what you have learned to someone else! Research clearly shows that teaching is one of the most effective ways to learn. If you try to explain aloud what you have been studying,

- (1) you'll transfer the information from short-term to long-term memory, and
- (2) you'll quickly discover what you understand and what you don't).

Ruskin(2009) advises readers to choose the strategy to suit the purpose:

Skim – for an impression

Scan – for an item

Read carefully for information and research.

To select reading matter for an assignment, skim, keeping your task in mind:

Read: the back cover, contents page and chapter headings to see if all or part of the book will be relevant; check section headings/conclusions for each chapter. Consider: whether the book is on your recommended reading list; how recent and up to date it is; how readable and manageable it looks. To locate a specific piece of information, e.g. a name in an index or directory, use the scan approach.

## **2-2-11-SQ3R and SQ4R**

Pritchard(2007:30-40) illustrated that there are five stages to pass through SQ3R, each one is dependent on the stage preceding it. The description of SQ3R below assumes that we are dealing with a chapter in a book, but the system can be applied in any reading context.

**2-2-11-1. Survey:** Glance over the headings in the chapter and read the final paragraph. Look for a central theme. Try to identify some core ideas. Find words highlighted by the author, read any definitions in boxes or in the margins, read any key sentences which are highlighted in any way and read the chapter summary or synopsis if there is one – this will be either at the beginning or the end of the chapter.

**2-2-11-2. Question:** Go back to the beginning of the chapter and turn the first heading into a question. This will arouse your curiosity, increase your comprehension, bring to mind information already known and help you to understand the section more quickly. For example: ‘Difficulties which arise when using the internet’ could become ‘What are the difficulties which arise when using the internet?’, and ‘The evolution of number theory’ might become ‘How did number theory evolve?’ or even ‘Describe the evolution of number theory’.

**2-2-11-3. Read:** To find the answer to your question, read to the end of the first section. Here you are looking for material to clarify arguments and assumptions, to evaluate them and to answer your own questions. Your reading is an active search for answers. When you have read, or perhaps read more than once, the section in question you should be able to formulate an answer to the question which you posed yourself.

**2-2-11-4. Recite/Recall:** Look away from your text now and attempt to recall the answer to your question. Use your own words and give an example. If you are able to do this then you have taken in the content of the section. If not, then glance over the section again. A good way to do this is to write down short key phrases as notes on a piece of paper. These can then form the basis of the notes that you might choose to make at a later stage.

**2-2-11-5. Review:** Look over all your notes to get a summary of all the points and their relationships with each other. Check that your recall was correct and check your memory by repeating the main points under each of the headings from the chapter.

Using the five steps of the SQ3R method is likely to result in faster reading, highlighting of important points and assisting in the process of installing them in your memory .It is an example of engagement. Another benefit from this method is that exam questions will seem familiar because the headings you turn into questions are often those set in tests. This approach stresses engagement and activity, which are crucial elements in the process of developing understanding. Engagement and activity are features of all of the reading strategies suggested here.SQ4R is a minor variant of SQ3R. The variation has the potential to be important for some readers. The fourth R refers to write, or Record. Yet another version of SQ4Rincludes Relate as a stage in the process.

## **2-2-12 Summary**

In the light of what above mentioned about reading the researcher comment that learning to read is one of the most important strategies that students can accomplished in school . Reading can develop positive values in students .Through reading students can improve their critical thinking and widen their knowledge.

## **Domain Three Q.A.R**

### **2-3-1-Question-Answer Relationships (QAR)**

Taffy E. Raphael, creator of the Question Answer Relationships (QAR) framework, has researched teaching QAR comprehension strategies since the 1980s. She is a member of the faculty in Literacy Education at the University of Illinois at Chicago and has written numerous research articles and books, including QAR Now, which

she coauthored with Kathryn Au. Kathryn H. Au, who served as president of the International Reading Association from 2009-2010, is an educational consultant and former professor at the University of Hawaii at Manoa. She has published widely on the topic of literacy instruction and diversity, including *Multicultural Issues and Literacy Achievement* (Erlbaum). Coauthor of *QAR Now*, her current work focuses on school change that improves student achievement (Raphael, 2006).

Research shows that teachers are asking students far too many literal questions, while state and national assessments are increasingly focused on questions that require higher levels of thinking. So that students can improve their own inquiry and comprehension skills, teachers also need to sharpen their questioning. Hollas (2008) affirms that QAR is a comprehension strategy that can help translate into success on assessments and all tasks that require deeper thinking.

### **2-3-2-Defining the Strategy**

Raphael, (1986) defines QAR (Question-Answer Relationship) strategy as it teaches students to categorize questions asked in textbooks according to *where* and *how* they find the answer to these questions. By studying the types of questions asked, students learn to seek answers quickly and accurately. When answering textbook questions, students are usually expected to use explicit information, implicit information, and information from their own experiences. This strategy can be easily correlated to the six levels of Bloom's Taxonomy.

### **2-3-3-Purpose of Question-Answer Relationship (QAR) Strategy:**

Raphael, (1986) provides a basis for teaching three comprehension strategies: locating information; showing text structures and how the information is organized; and determining when an inference or reading between the lines is required. QAR shows students the relationship between questions and answers, how to categorize different types and levels of questions (***Right There, Think and Search; the Author and You and On My Own questions***), as well as how the text does not have all the answers. QAR helps students consider both information from the text and information from their own background knowledge. If students are asked to create their own questions, QAR also extends their writing ability.

According to Billmeyer, (2006) the Question-Answer Relationships (Raphael, 1986) strategy helps students make connections between information in the selection and their prior knowledge. Reading comprehension increases with the use of this strategy because readers are asked to think at various levels of cognitive processing. The strategy encourages the reader to think about the selection from four perspectives: entering the text, moving through the text, moving beyond the text, and carrying on a mental dialogue with the author.

Students who use this strategy learn to recognize the different types of thinking needed when answering questions. Thoughtful questions cause readers to anticipate meaning, to search for information, to modify ideas, and to elaborate upon the ideas presented in the selection .Another benefit of the QAR strategy is that students can learn to ask the four different types of questions, and the questioning process can be transferred from teacher to learner. This allows students to become independent strategic readers by formulating their own questions while reading .Padrón,(1992)adds that this type of strategy instruction transfers control to the students and decreases the dependence on teacher-provided cues for strategy use Question-Answer Relationships and Reciprocal Teaching provide scaffolding and may be important instructional strategies that should be considered for second language students

#### **2-3-4-When to Use the Strategy**

Use the Question-Answer Relationship strategy to :

- Prepare students for standardized testing.
- Develop understanding of informational and narrative text.
- Provide an opportunity for students to create questions about the selection read.(Billmeyer, 2006).

#### **2-3-5- The Way to Use the Strategy**

Rafeal,2006 explains in details how the teacher can apply this strategy in the class:

**2-3-5-1** The teacher explains that answering questions about selections read requires the reader to use information found in the book and information from their own

background of experience. Provide an overview of the four different types of questions. Help students understand that the first two types of questions are text-based because the answers are found in the text.

### *Text-Based Questions or “In the Book”*

- **Right There Questions** require a literal-level response. The answer is easy to find because it is explicitly stated in the text. The words used in the question and the words found in the sentence to answer the question are Right There. Right There questions usually require a one word or short response and begin with words like who, when, or where. Because these questions usually elicit one right answer they require a minimal amount of teacher wait-time or student thinking. Examples of Right There questions are: “Who is the president of the United States?” and “Where did the acupuncture technique originate?”

- **Think and Search Questions** require more inferential thinking. This type of question asks the reader to interpret or analyze information read and then organize ideas from various sentences in order to formulate the answer. Students will find answers located in the text but first must “Think” how the information in the text is connected and then “Search” through the selection to determine what information will answer the question. Sentences beginning with words like describe, explain, or analyze may signal to the reader that this is a Think and Search question. Examples of the questions are: “Describe the similarities and differences between the drama, Romeo and Juliet, and the movie.” and “Explain how the reading strategies described in the article might benefit your students.” The next two types of questions ask students to use information pulled primarily from their own background knowledge. These questions require them to hypothesize answers based on personal information. Answers are found in the mind of the reader.

### *Reader-Based Questions or “In My Head”*

- **On My Own Questions** ask students to speculate or hypothesize and apply the information to their own experiences. This type of question requires more think time because often there is no right or wrong answer. The question “What if all teachers incorporated reading strategies in their teaching?” asks the reader to speculate and to go beyond the selection read, using prior knowledge to formulate a response. On My

Own questions can be useful in activating background knowledge prior to reading.

Question starters include: What if? How might? and What can?

• **Author and You Questions** require students to interact with ideas presented by the author. Students need to think about what they know about the topic, what the author is saying in the text, and how the two are related. For example, the selection discusses the acupuncture technique and the Author and You question might be:

“When do you think acupuncture should be used?” Author and You questions may begin with words or statements such as: How will? Where could? and What would?

### **2-3-5-2 The Next Step is to Model the Question-Answer Relationships Process:**

- Read a selection to the students.
- Ask a question about the selection.
- Share the answer to the question.
- State the type of question and give an explanation for the answer.

### **2-3-5-3 Instructional Considerations When Teaching Question-Answer Relationships Include:**

- Instruct students how to tell the difference among the four Question-Answer Relationships.
- Give students feedback.
- Progress from shorter to longer and easier to more difficult selections and/or more complex questions.
- Build independence by beginning with the large group, moving to small groups, and finally to independent activities.



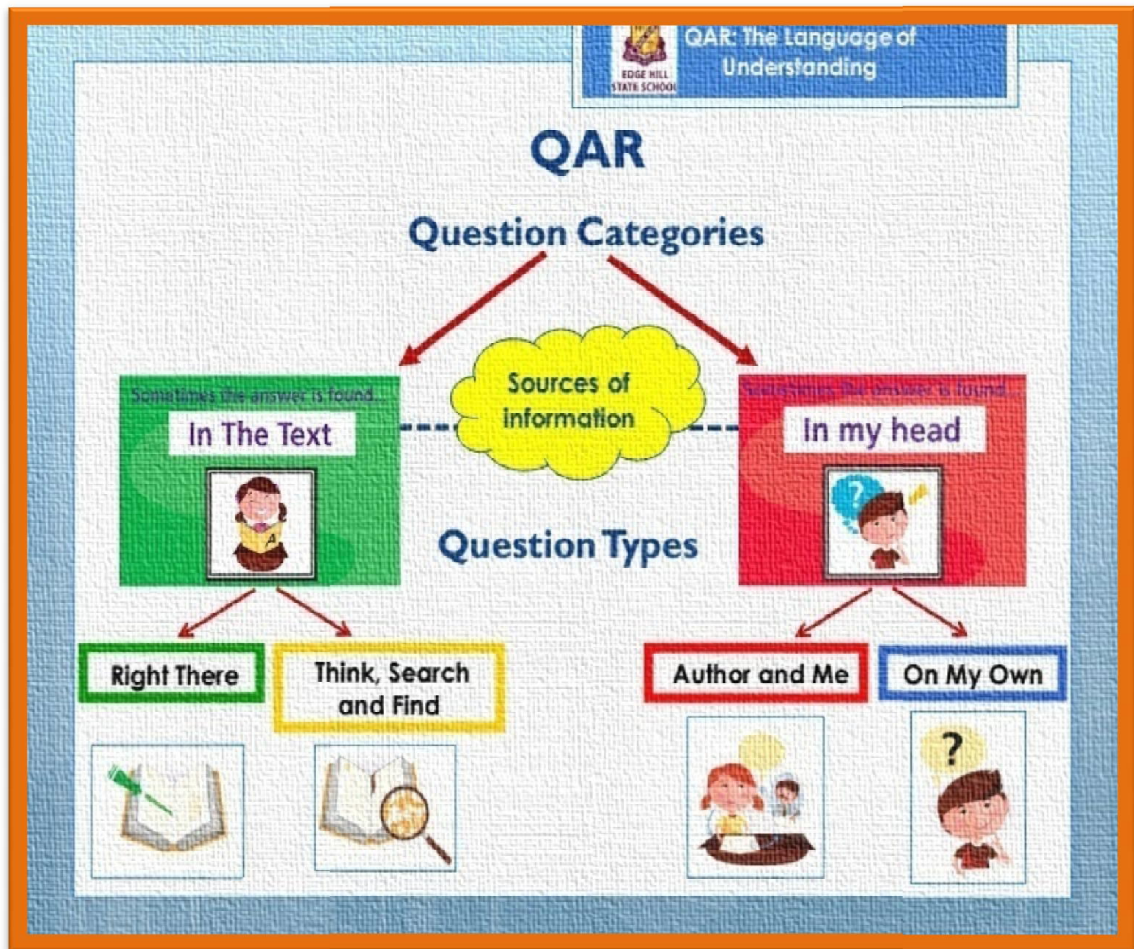


Figure (1) QAR question categories .Simon,(2013

### 2-3-6-Examples of Q.A.R.: Question Answer Relationships

Simon,(2013) offers some examples of questions for each type of the strategy QAR:

#### 2-3-6-1 “In the Book” Questions

##### 2-3-6-1-1Right There

These are basic recall questions. The answer is in one place and often the words from the question and the answer are in the same sentence. For example:

Where does this person live?

What does this person do for a living?

When does this story take place?

##### 2-3-6-1-2 Think and Search

These answers can be found in the text, but involve higher level thinking like

comparing/contrasting, drawing inferences,  
describing the mood, setting, or symbolism. For example:  
What are the important ideas in this text?  
What are the character traits that you see in the main character?  
What does this person look like?  
What kinds of challenges did the person face?  
What are the persons' major accomplishments?  
How can you prove that this person is (brave, loyal, kind, etc.)?  
Based on the text, what conclusion can you draw about...?  
What clues in the text help us understand the word...?  
What does this article mostly describe...?

### **2-3-6-2 “In Your Head” Questions**

#### **2-3-6-2-1 Author and Me**

The answer is not in the text. Students must think about what they learned from the text and what they know to generate an answer. For example:

Why did the author...?

What was the most surprising part of the book or article?

If you could interview the author, a character, historical figure, or person of interest what would you ask? If you could add to, take away, or change a part of the book or article what would you change and why?

What questions do you still have about this topic?

Why should/shouldn't people (use something from the article – exercise every day, bite their fingernails, etc.)?

#### **2-3-6-2-2 On My Own**

The answer is not in the text. Students must rely solely on their own interpretation experience to answer the question. For example: Have you ever...(done something brave, competed in sports, climbed a mountain, etc.)? What was it? When have you (felt proud, rode your bike for the first time, felt ashamed, etc.)? What do you think it would be like to...(climb a mountain, fly a plane, compete in the Olympics)? What do you think about...(kids having a hobby that could be possibly dangerous.

As Hoyt(2005) writes, “Don’t we want every reader to climb into books with a tool belt banging and clanging with tools for getting the most out of their reading ? ”

Self-questioning helps engage us as readers and keeps us involved. Proficient readers actively ask their own questions and make predictions as they read. Being able to generate questions not only helps proficient readers deepen their understanding of the text but helps them learn how to learn.

Additionally, students’ understanding of text is shaped by the types of questions they have asked and been asked. How can we help our striving readers develop self-questioning strategies for deepening their comprehension of the text? And how can we ensure that student’s self- questioning embraces higher-order thinking?

There is significant research that shows explicitly teaching students comprehension strategies, including questioning, helps improve their comprehension.

Question-Answer Relationship or Q.A.R. This strategy as Rafael(2006) emphasizes is “designed to demystify the questioning process , providing teachers and students with a common vocabulary to discuss different types of questions and sources of information for answering these questions . ” The strategy is based on the relationships between questions and answers and is designed to help students recognize that asking and answering different kinds of questions require different reading behaviors and thought processes. When QAR is taught to students and practiced in class for eight weeks or longer, reading comprehension improves significantly, with average and below average students showing the greatest improvement.

As we use this strategy, we must be mindful to encourage students to generate all four levels of questions. It is important that the “On My Own” questions are given equal consideration; these questions help students activate their prior knowledge and make connections of new learning to what they already know. To clarify more, Rafael(2006) summarizes the way of teaching by using the strategy saying "teach QAR to students, begin with naming the strategy and describing why and when it should be used. The four levels of questions may be introduced over several days or longer, as necessary. Model the strategy in a meaningful context through think-aloud with shared text. Collaborate with your students to use QAR with authentic text, allowing for gradual release of responsibility to the students. Prior to asking students

to attempt the strategy, model QAR for several weeks with several books in different genres. It is important to provide students with ample opportunities for independent practice with immediate feedback. As you implement these steps, ownership of questioning is transferred from you to your students". QAR is a flexible strategy and can be used across grade levels and subject areas. It lends itself both to fiction and nonfiction. At the primary level, students initially respond best to a distinction between the two categories, "In the Book" and "In My Head." Photographs or pictures can be used to introduce or practice QAR. Student questions about shared text can be posted with their names on chart paper. Listing student questions serves to honor the diverse student questions; it teaches students to value their questions and to see how their questions can increase their own understanding. QAR can also be used as a framework for students to sort into the four categories the questions they generate or that they encounter in their texts and in standardized assessments. Being able to recognize the different types of questions helps students answer the questions.

Before using QAR, consider the following: How can engaging in this strategy with your colleagues inform your work with students? How can the use of a common vocabulary help foster a culture of comprehension? What pieces of text will you use that lend themselves to QAR? How can you implement QAR with your students in your work in the classroom, in your work in intervention? What additional modifications or support do you need to make so that QAR is accessible to all your students? How will you use QAR to enable your students to think about how their questions help them with their understanding in reading and listening activities? Consider especially sharing what works with your colleagues.(Rafael,2006).

### **2-3-7-Promoting and Assessing Reading Skills**

In language classes a variety of texts are used as "rich language input" from the very beginning on. Basically, every teacher relies upon the fact that once the pupils have learnt the alphabet and they know the vocabulary and grammar, then they can read and understand what they have read. However,(Wagner ,2009)points out that reading for understanding is a much more complex process, involving different strategies which enable the reader to construct the meaning encoded in the text:

- \_ activate your prior knowledge
- \_ anticipate meaning

- \_ activate inferences, patterns
- \_ create/referee to mental models
- \_ recognize difficulties
- \_ choose a strategy according to the difficulty
- \_ self-monitoring / comprehension check.

In order to improve the readings skills it is most important to make these invisible thinking processes visible. If we want our pupils to use strategies while reading, we must explicitly show them first, what strategies there are and how to use them in all subjects. One of the very effective and transparent ways of instruction regarding, how to get the meaning out of the text is the QAR-method, developed by T. Raphael. Teachers use questioning strategies to guide and monitor comprehension and to promote higher-level thinking in their students.

How to find the answer in the jungle of words some of which they don't even understand?. Through visualization and modeling the "Question-Answer-Relationship" (QAR)strategy helps students locate information, analyze text for information, and determine when inference is required. It encourages learners to be more efficient and strategic readers. According to where you get the information from, the questions are divided into two primary-source QARs: "*In the book/text*" or "*In my head/ my knowledge*". These are again divided into two core QARs each: "*Right There*" and "*Think & Search*" against "*Author/Text & Me*" and "*On My Own*". This strategy promotes different reading styles (skimming, scanning, close reading)and strategies and by meta-cognitive discourse ("How did I find the answer?") leads to higher level-thinking. It makes the invisible processes while reading visible. Above all it helps the teacher as well as the learner to monitor and to assess reading skills and strategies in a transparent way."Question-Answer-Relationship" is an effective strategy for improving reading comprehension at all levels. It proved very useful in mixed ability classes (age 14 -16) at a state comprehensive school with high percentage of migrant children. Using visuals and grids for self-reflection, a teacher guides and monitors the learners in a very simple and transparent way. It helps both – the struggling learners and the advanced ones. Besides, promoting higher level thinking, this strategy also encourages students to be active, strategic readers of texts (Wagner, 2009).

### **2-3-8- Procedure of Applying QAR:**

2-3-9-1. The teacher makes up a series of QAR questions related to the materials to known to the students and a series of QAR questions related to the next reading assignment.

2-3-8-2. The teacher introduces QAR and explains that there are two kinds of information in a book: explicit and implicit.

2-3-8-3. The teacher explains the levels of questions and where the answers are found and gives examples that are appropriate for the age level and the content. A story like Cinderella that is known by most students usually works well as an example, even in high school classes.

2-3-8-4. The teacher then assigns a reading and the QAR questions he/she has developed for the reading. Students read, answer the QAR questions and discuss their answers.

2-3-8-5. The teacher and students discuss how they can use this strategy on their own and how it facilitates understanding and critical thinking.

2-3-8-6. After using the QAR strategy several times, the students can begin to make up their own QAR questions and in small groups share with their classmates.

2-3-8-7. The teacher closes this activity with a discussion of how students can use this strategy in their own reading and learning. (Rickelman,2000).

**Dr. Taffy Raphael** and **Dr. Kathryn Au** (2006) developed this popular product for Wright Group. They wanted to support instruction and test-taking skills within the context of authentic, valuable, and meaningful instructional activities, not through taking students away from good instruction to simply drill and prepare for a single test. **QAR** can provide a shared language to make visible the largely invisible processes underlying how we make sense of text using the two key sources of information the text and our background knowledge—before, during, and after

reading. **QAR** can provide a framework for organizing questioning activities and comprehension instruction across the grades. **QAR** can provide an accessible and straightforward 'way into' whole-school reform for literacy instruction oriented toward higher-level thinking.

**QAR** helps prepare students for high-stakes testing in a manner that leaves them with literacy strategies of long-lasting value. **QAR**—Question Answer Relationships is a research-based method for getting students to think about what they read. It helps students identify the type of question they're being asked and shows them how to approach each type to answer it correctly.

**QAR** uses research-proven strategies, developed through years of classroom experience, to help grades 1–8 students:

- Understand the relationships between questions and answers
- Ask thoughtful questions about text
- Practice higher-order thinking skills
- Improve test performance

Promoting high levels of literacy for all children is a core responsibility for today's teachers. Educators agree that students must meet high standards for literacy achievement. In a democratic society, success depends on an informed citizenry who can participate effectively in the democratic process reading a wide range of materials, interpreting and evaluating what they read, drawing conclusions based on evidence. **QAR** strategy could be implemented in individual and group discussion consist of three, four, and so forth.

The findings of the research of (Mutado,2011)reveals that the appropriate model of **QAR** strategy in teaching reading consisted of these procedures:

- giving a brief explanation about the instructional objective and the topic,
- asking students to sit in group of three,
- showing pictures related to the topic and asking some questions to activate the students background knowledge,

- modeling the types of QAR,
- distributing worksheet,
- asking students to read the text silently,
- Assigning students to discuss language feature ,
- Guiding students to identify the types of questions Right There, Think and Search, Author and Me, and On My Own,
- Asking students to answer the types of question
- Encouraging the students and giving them assistance,
- asking the groups to show the answer,
- asking the group to exchange the answer to another group and to discuss,
- determining the correct answer and asking how to find the answer with the whole class,
- giving feedback, and
- giving conclusion" The most important steps are (modeling, guiding, and practicing) because these steps are the core steps in implementing the QAR strategy .

### **2-3-9-QAR and Standardized Testing**

Stress the QAR strategy as an important step in tackling the open-ended comprehension questions on the reading sections of your state’s standardized testing. Encourage students to analyze a question and consciously determine where and/or how they can find an appropriate answer—before they write down the first answer they think of (stuff,2009).

### **2-3-10-Generating Material for Literature Circles and Book Groups**

Implementing QAR material is a great way to create material for book discussions. Using a relevant text, write a related question on your whiteboard or chart paper for each of the QAR categories. Ask students which of the four questions would be good



questions to ask their literature circle or book group. Point out that the On My Own and the Author and Me questions are ones that generate more discussion, because they could have more than one answer, while the Right There and Think and Search questions ultimately have a specific discrete answer. For a reading response activity, copy and distribute the Your Turn! Reproducible and have students create questions for some piece they have just read. After checking students' questions, have them bring the reproducible to their literature circle or book group and use the In My Head questions to generate discussion within this is the way in their group (Stuff,2009) to deal with the strategy.

### **2-3-11-Setting Up a QAR Lesson**

Setting up a QAR lesson according to Horizons (2007) follow these steps :

**2-3-11-1.** Select an interesting text. This could be a fiction or non-fiction.

**2-3-11-2.** Write questions that would fall into one of the following three categories:

a-RIGHT THERE — The information that students will need to answer the question is *right there in the text*. Questions that fall into this category are at the literal level.

b-THINK AND SEARCH — The students will use information in the text in addition to their own experiences (prior knowledge, to form inferences.

c- IN MY HEAD — Information needed to answer questions at this level are dependent on students' summary/ evaluation of the text. Answer to the question is entirely in the reader's mind but based on the information in the text.

Model, using Think Aloud, how you determine the source of the answer to various questions. Guide students as they determine the source of answers for questions based on a piece of simple text.

**2-3-11-3-** Discuss with students how answers to questions come from different places before they begin to read the text. This helps students to think about the questions while they are reading and so provide them with a purpose for reading.

**2-3-11-4.** After students have read the text, give them clear instructions about each of the three categories mentioned above. Information on overhead projector or handout

for students might be helpful to achieve this.

2-3-11-5. Ask students to answer the questions and to state the category of information they need to answer each.

2-3-11-6. Discuss students' responses as a whole class activity. Students should be given the opportunity to respond to each other's contribution by asking questions and discussing other categories to which answers could be assigned. Such rich discussion can promote comprehension skills and extend knowledge.

## **2-3-12 Summary**

To sum up, QAR strategy is considered as model for teaching reading and it is commonly used to improve students' reading comprehension and their higher order thinking skills . That's why, the researcher used QAR strategy in this current research in order to improve the 6<sup>th</sup> graders higher order thinking skills .

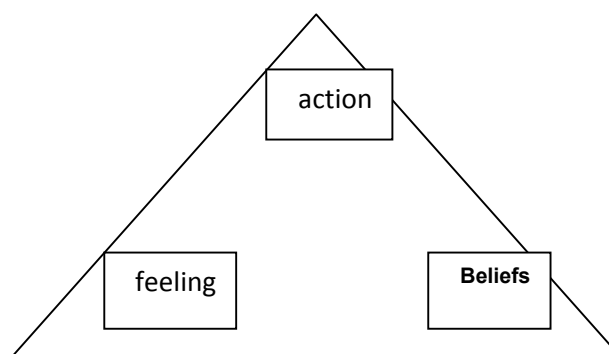
## **Domain Four : Attitudes**

### **2-4 -1-The Definition of Attitudes**

Mahzarin.et al., (2009:p350-366) defines attitudes as “ A mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual ’ s response to all objects and situations with which it is related ,objects of thought , dimensions of judgment “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor ” “Attitudes are the evaluative judgments that integrate and summarize cognitive/affective reactions ” . Jowell, (2005) defines it as ‘a psychological tendency to view a particular object or behaviour with a degree of favour or disfavour’1. Attitudes are generally understood to be formed through a process of individual subjective evaluation, but also influenced by affective and emotional responses and related beliefs. Attitudes are defined as being specific to an object or behaviour while beliefs are more generic, relating to a wider worldview, and tend to be more stable While McLeod,( 2009)states that:1:An attitude is "a relatively enduring organization of beliefs, feelings, and behavioral tendencies towards socially significant objects, groups, events or symbols" 2"..a psychological tendency that is

expressed by evaluating a particular entity with some degree of favor or disfavor. While definition of an attitude in business dictionary A predisposition or a tendency to respond positively or negatively towards a certain idea, object, person, or situation. Attitude influences an individual's choice of action, and responses to challenges, incentives, and rewards (together called stimuli).Michael (1995) defines it "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object" Pickens,(2005 ) defines it as a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence on the individual's response to all objects and situations to which it is related. A simpler definition of attitude is a mind set or a tendency to act in a particular way due to both an individual 'experience and temperament. Attitudes are a complex combination of things we tend to call personality, beliefs, values, behaviors, and motivations .As an example, we understand when someone says, “She has a positive attitude toward work” versus “She has a poor work attitude.” When we speak of someone’s attitude, we are referring to the person’s emotions and behaviors. A person’s attitude toward preventive medicine encompasses his or her point of view about the topic (e.g., thought); how he or she feels about this topic (e.g., emotion), as well as the actions (e.g., behaviors) he or she engages in as a result of attitude to preventing health problems .This is the tri-component model of attitudes(Pickens, 2005:43 ) (see **Figure 2-**

**(Figure 2).**component of an attitude (Pickens, 2005)



includes three components: an affect (a feeling), cognition (a thought or belief), and behavior (an action).Attitudes help us define how we *see* situations, as well as define how we *behave* toward the situation or object. Attitudes also provide us with internal *cognitions* or beliefs and thoughts about people and objects.

## **2-4 -2-Formation of Attitudes**

How are attitudes formed? Pickens,(2005) answers for this question and states that attitude formation is a result of learning, modeling others, and our direct experiences with people and situations. Attitudes influence our decisions, guide our behavior, and impact what we selectively remember (not always the same as what we hear). Attitudes come in different strengths, and like most things that are learned or influenced through experience, they can be measured and they can be changed.

## **2-4 -3-Changing Attitudes**

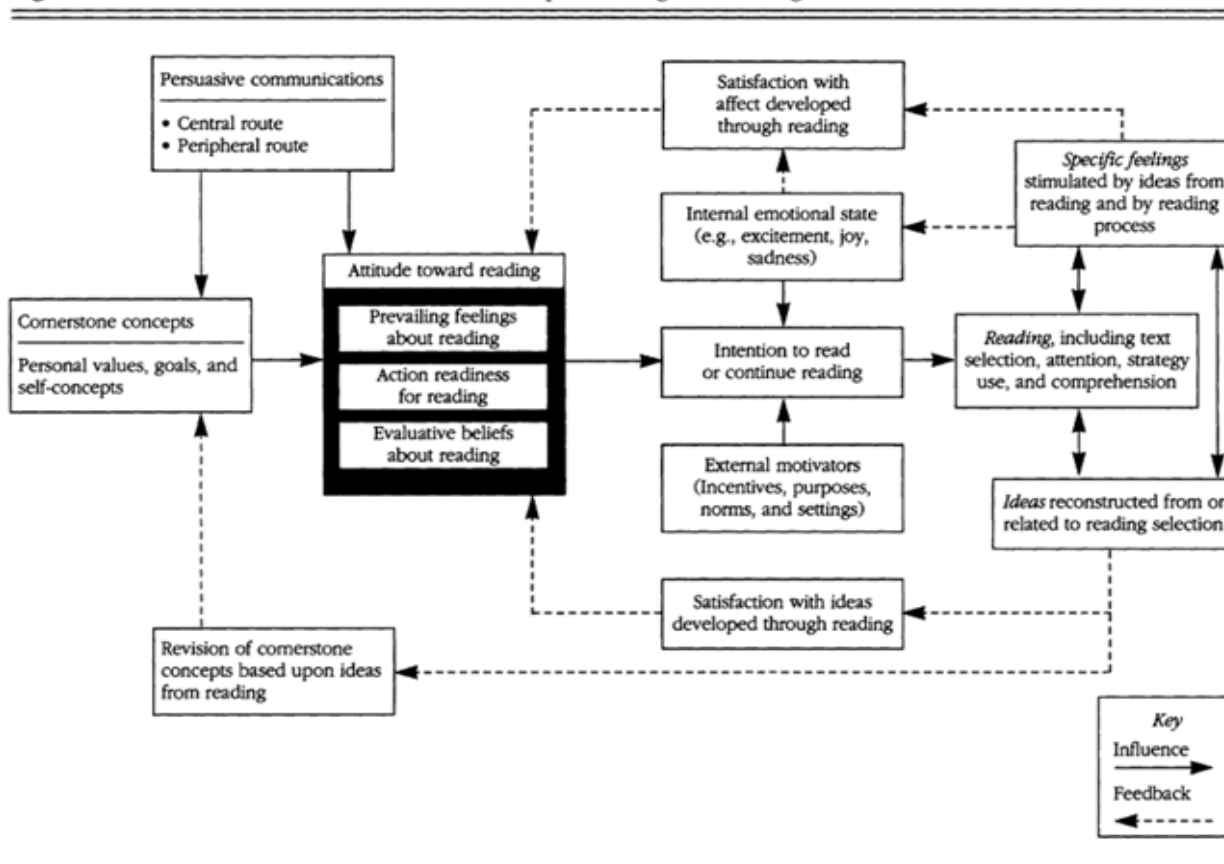
How do you change someone's attitude? To change a person's attitude you need to address the cognitive and emotional components. How would you convince another person to start an exercise program when the individual may say, "I don't have enough time" or "I'm just too busy" or "I don't want to risk being injured"? One approach would be to challenge someone's behavior by providing new information. As an example, explain to the other person how you made time in your day and, as a result, both your cholesterol level and blood pressure decreased. This is a cognitive approach when a person is presented with new information. Providing new information is one method for changing a person's attitude and therefore his or her behavior. Attitude transformation takes time, effort, and determination, but it can be done. It is important not to expect to change a person's attitudes quickly. Managers need to understand that attitude change takes time and should not set unrealistic expectations for rapid change. Attitudes are formed over a lifetime through an individual's socialization process. An individual's socialization process includes his or her formation of values and beliefs during childhood years, influenced not only by family, religion, and culture but also by socioeconomic factors. This socialization process affects a person's attitude toward work and his or her related behavior( Pickens,2005.p44 ).

## **2-4 -4-Reading Attitude,**

Mahzarin.et al.,( 2009:p350-366 ) considers reading attitudes as "a system of feelings related to reading which causes the learner to approach or avoid a reading situation".

Within the rubric of such general definitions, specific dimensions or types of reading attitude are often discussed, and empirical support for their discrete existence is persuasive one may have an attitude toward reading science fiction that differs considerably from one's attitude toward reading romantic fiction. It is still consistent to assume, however, that individuals also possess a global attitude toward reading in general. In this respect, it is common to speak of attitudinal hierarchies, in which the objects of attitudes range from general to specific .According to( Michael et al 1995) (see figure 3 ) (attitudes toward reading).

**Figure 1** Mathewson model of attitude influence upon reading and learning to read



From Mathewson (1994). Reprinted by permission.

(figure 3) (attitudes toward reading)

## 2-4 -5-The Nature& the Origin of Attitudes

The idea of attitude construal view that attitudes do not necessarily exist in some preformed state but can be built, created, generated, on the spot, in fine - tuned response to contextual demands. Attitudes, conceived of in this way, are viewed as potentially adaptive reactions to environmental demands. Such a view is in synch with

mounting empirical evidence pointing toward attitude variability across time and situations, often producing large differences with minimal variation in the instantiation of the attitude object. Although acknowledging that people can acquire attitudes through potentially nonsocial sources such as classical conditioning social psychologists typically assume that many preferences derive from different parts of the social world, from the words and behaviors of other beings, and from the events that unfold in the world. Individuals “ get ” attitudes from others directing information toward them explicitly attitudes may be agents in close proximity, such as associates, caregivers, friends, schools, and neighborhoods, or they may sit far away and reach distant individuals through new technologies, such as television and the Internet.

(Mahzarin.et al, 2009:p350-366).

## **2-4 -6-Structure of Attitudes**

Attitudes structure can be described in terms of **three components**. As McLeod ,(2009) list.

**Affective component:** this involves a person’s feelings / emotions about the attitude object. For example: “I am scared of spiders”.

**Behavioral (or cognitive) component:** the way the attitude we have influences how we act or behave. For example: “I will avoid spiders and scream if I see one”.

**Cognitive component:** this involves a person’s belief / knowledge about an attitude object. For example: “I believe spiders are dangerous.

## **2-4 -7-The Function of Attitudes**

**McLeod ,(2009) also list four functional areas:**

### **A-Knowledge.**

Attitudes provide meaning (knowledge) for life. The knowledge function refers to our need for a world which is consistent and relatively stable. This allows us to **predict** what is likely to happen, and so gives us a sense of control. Attitudes can help us organize and structure our experience. Knowing a person’s attitude helps us

predict their behavior. For example, knowing that a person is religious we can predict they will go to mosque.

**B-Self / Ego-expressive.** The attitudes we express

(1) help communicate who we are

(2) may make us feel good because we have asserted our identity. Self-expression of attitudes can be non-verbal too: think bumper sticker, cap, or T-shirt slogan. Therefore, our attitudes are part of our identity, and help us to be aware through expression of our feelings, beliefs and values.

**C-Adaptive.** If a person holds and/or expresses socially acceptable attitudes, other people will reward them with approval and **social acceptance**. For example, when people flatter their bosses or instructors (and believe it) or keep silent if they think an attitude is unpopular. Again, expression can be nonverbal [think politician kissing baby]. Attitudes then, are to do with being a part of a social group and the adaptive functions helps us fit in with a social group. People seek out others who share their attitudes, and develop similar attitudes to those they like.

**D-ego-defensive** function refers to holding attitudes that **protect** our self-esteem or that justify actions that make us feel guilty. For example, one way children might defend themselves against the feelings of humiliation they have experienced in P.E. lessons is to adopt a strongly negative attitude to all sports .People whose pride has suffered following a defeat in sport might similarly adopt a defensive attitude: “I’m not bothered, I’m sick of rugby anyway...”. This function has psychiatric overtones. Positive attitudes towards ourselves, for example, have a protective function

(an ego-defensive role) in helping us reserve our self-image. The basic idea behind the functional approach is that attitudes help a person to mediate between their own inner needs (expression, defense) and the outside world (adaptive and knowledge).

## **2-4 -8-Methods for Capturing Attitudes**

Jowell,( 2005) elaborates that In such studies, attitudes are typically measured using two main types of scales: either **Likert Scales**, where there are five response categories ranging between two extreme positions, e.g. strongly agree and strongly

disagree, or using **semantic differential** questions, which contain a set of opposites, e.g. easy – difficult, and the space between the opposites is graded from 0 expressing the lowest evaluation to 6 representing the highest evaluation, e.g. how would you rate the role of your teacher? Difficult (6) – Easy (0); Irritable (6) – Calm (0); Active (6) – Passive (0). Quantitative approaches to attitudinal data collection are used widely by national government because they are the only way to assess the prevalence of attitudes across a population. Another advantage of quantitative attitudinal data is that it allows us to track changes in societal attitudes over time, e.g. by asking the same questions in the annual Scottish Social Attitudes Survey, as well as compare differences across space, e.g. through asking same questions in different countries using (for example) the British Social Attitudes Survey and European Social Survey. A potential disadvantage of quantitative surveys is that it requires respondents to consider and make judgments about often complex or emotive issues in a relatively short space of time. A consequence of this is that surveys can oversimplify the issues under examination as well as the nature of public opinion with respect to those issues. Nonetheless, qualitative methods can effectively complement quantitative methods by examining more deeply the factors underlying attitudes.

## **2-4 -9-Attitudes and Behaviours – Key Theoretical Issues**

There are a number of theories seeking to model the process whereby attitudes might be translated into behaviours. One of the most commonly used and accessible of these is Ajzen's Theory of Planned Behaviour (TPB), which is formed on the basic premise that attitudes are significantly correlated to behavioural intentions, which in turn are the proximal determinants of behaviour. A diagrammatical representation of the model is shown in Figure 4.



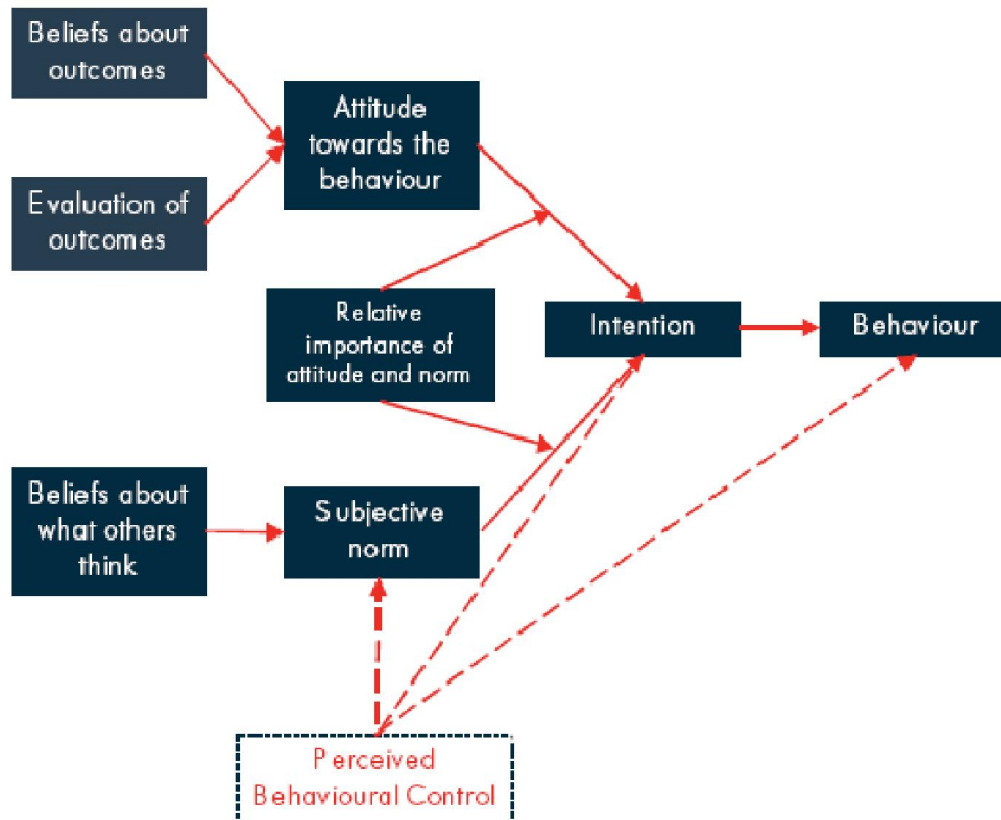


Figure (4) perceived behavioral control(Jewell,2005) .

Another consideration when measuring the influence of attitudes on behavior, is the ‘principle of compatibility’, which holds that when attempting to predict behaviors from attitudes, the behavior and attitude in question should be defined at the same level of generality or specificity. This is because *general* attitudes towards an object tend to be poor predictors of any *specific* behavior directed at that object, as the same general attitude may be expressed through a variety of quite different behaviors. For example, general positive attitudes towards conserving environmental resources may lead to individuals engaging in different specific behaviors, e.g. recycling glass or paper, using public transport more, turning down the heating, etc. However, when an aggregate measure is produced that measures whether people performed *any* of a large number of related behaviors in a particular area, correlations with general attitudes tend to be much stronger.

A final theoretical issue is the influence of behaviors on attitudes. When a correlation between an attitude and a behavior is found, it is often assumed that the attitude ‘came first ’and influenced behavior. However, quantitative attitudinal research can only

show correlation, not causation. There is a body of literature on how behaviors can influence attitudes, as well as being influenced by them. Behaviors can contribute to attitude formation, e.g. someone may agree to join a neighborhood watch program without much thought, and after having attended meetings, delivered flyers etc may rationalize these efforts by deciding that neighborhood watch programs are important. They have thereby gone from not having considered the issue at all to holding a positive attitude about it (Jewell,2005).

## **2-4-10 Summary**

In the light of what above mentioned about attitudes the researcher can benefit from them to construct the reading attitudes scale which is one of the main tool of the study.

### **General Commentary on Part 1:**

to sum up, this section presented the theoretical framework of the study in order to give a clear view about the relevant topics:

In the first domain of this chapter, the researcher talks about theories related to learning higher order thinking skills then, defines higher order thinking skills and discusses some types of thinking ,how and why we teach thinking ,how do teachers teach higher order thinking skills and how to train them to do so step by step. She also mentions some teaching strategies and how school educators can encourage higher order thinking skills.

In the second domain of this chapter, the researcher defines reading, investigates why read , what read , and why it is important and talks about types of texts , types of reading, ways of reading , stages of reading process ,active reading strategies and SQ3R & SQ4R .

In addition, she defines in the third domain the QAR strategy and talks about the purpose of the strategy ,why ,when and ,how to use it .She also illustrates examples of QAR and discusses the procedures of applying it and how to set up a QAR strategy lesson.

In the fourth domain, the researcher also defines in the attitudes and talk about formation of attitudes ,changing attitudes ,reading attitudes ,the nature and origin of attitudes ,structure and function of attitudes, and methods of capturing attitudes . She also mentions key theoretical issues of attitudes and behavior.

From this theoretical framework, it is evident that there is a strong relationship between the QAR strategy and higher order thinking skills. The researcher suggested that in order to make the reading lesson more effective, the teacher should use attractive strategies in their classrooms. So, if the students provided with such powerful strategy like QAR the result will be the increasing of the students higher order thinking skills.

## **Part 2: The Previous Studies**

This part of chapter two is divided into two domains. The first tackles studies that examined the effect of strategies used in developing higher order thinking skills .The second tackles studies that examined the effect of many strategies in developing reading .The third tackles studies that examined the effect of using Q.A.Rs strategy in developing reading comprehension and higher order thinking skills.

### **2-5-Studies that Addressed the Subject of Higher Order Thinking Skills**

#### **2-5-1 Abed Elatheem ( 2011)**

The present study aimed at investigating the effectiveness of some active learning styles in teaching mathematics on developing higher order thinking skills for preparatory stage students. The descriptive analytical method was used to choose the higher order thinking skills that the second year preparatory have to acquire and they were ( interpretation –analysis- and synthesis)the experimental method also was used to measure the effectiveness of some active learning styles in teaching mathematics (think-write-pair-share) strategy. The experimental group was taught using some active learning styles in teaching mathematics while the control one received traditional methods in teaching.

The Sample from second year preparatory school students(6 October area)were divided in to two groups ;the experimental group and the control group .The tools of the study included a higher order thinking skills test. The results showed that strategy made significant differences between the experimental group and the control one in favor of the experimental group.

Abed Elatheem, 2011 study, had enriched the researchers' background especially on specifying the sub skills of higher order thinking skills (analysis and synthesis) . This study is similar to the current one in its aim which was (enhancing HOTS among preparatory stage) . Also this study helped the researcher in constructing her higher order thinking skills test . Finally, this study used a descriptive analysis method unlike the current research which used the experimental method.

### **2-5-2 Abu Humos (2013)**

This presentation aimed at analyzing reading comprehension questions' levels of difficulty in English for Palestine 12th grade English student's textbook in terms of their categorization according to Barrets' reading comprehension higher thinking skills taxonomy: the literal comprehension, reorganization, inferential, evaluation and the appreciation levels. The researcher investigates whether the questions prepare students for future reading comprehension college experience. It also seeks to identify the compatibility of the 23 reading comprehension objectives in "English for Palestine" syllabus with Barrets' higher thinking skills Taxonomy. Through descriptive analysis, the researcher found that the largest proportion of the questions in the 12th grade textbook were literal level questions. The reorganization, inferential, and appreciation questions were under represented compared to the syllabus objectives percentages. Only the evaluation questions are compatible with higher thinking skills taxonomy as projected by the syllabus. The second question in this research was regarding the syllabus reading comprehension objectives which were found to be reasonably compatible with higher thinking skills. The researcher recommends to incorporate these findings in the student's textbook to simulate the syllabus percentages.

Abu Humos research illustrated that, there was a strong need to take care of implementing higher order thinking skills in the students text book (English for Palestine) and this helped the researcher to take this in her consideration when she

decided her problem study . There was differences between this study and the current one in the sample and in the method which was descriptive analysis method .

### **2-5-3 Alajamy ( 2013)**

The current study used an interactive multimedia program on developing higher order thinking skills and attitudes toward Islamic religious education among intermediate stage pupil in Kuwait . The descriptive analytical method was used to put a list of higher order thinking skills which the intermediate stage pupil have to acquire and the experimental method also was used to measure the effectiveness of the suggested programme . Sixty students were randomly divided into two groups: an experimental group contained (30)and a control group contained (30). The experimental group was taught using interactive multimedia program while the control one received traditional methods in teaching. The tools of the study included interactive multimedia program, a higher order thinking test, and the attitude scale . Equivalence between the experimental and the control groups on the dependent variables was ensured by using “ t-test”. After implementing the program, the results showed that subjects of the experimental group achieved a higher improvement than the control one on the post test of higher order thinking and in the attitude scale.

This study was very helpful to the researcher. It helped in conducting her study tools especially in constructing the higher order thinking skills and the attitude scale because the two studies met in their aims which was developing the students' HOTS . The sample also was intermediate students. But the method was different, Alajamy study used the descriptive analytical method .

### **2-5-4 ALkhodary ( 2009)**

This study explored the effect of a computerized program ,which employs the seven E's constructive strategy, on developing higher-order thinking skills of female seventh graders in the Technology subject .To achieve the research objectives, the researcher analyzed a study unit to determine the higher-order thinking skills and to prepare the instruments. Moreover, the researcher used the experimental method to carry out the research. The computerized program was applied on a sample of (79) female seventh graders at Sayeda Ruqaya Girl's School in Gaza, distributed into two

groups of which the experimental group consisted of 40 students and the control group consisted of 39 students .The tools of the study were (computerized program ,test of the higher- order thinking skills ,which covers the following levels of the cognitive domain: application, analysis, synthesis, and evaluation. The study findings proved the effectiveness of the constructive seven E's strategy-based computerized program in developing the higher-order thinking skills of the female seventh graders.

Having reviewed ALkhodary ( 2009) study, the researcher found that this study met with the current study in four areas :

First, it mainly focused on developing higher order thinking skills.

Second, the study used the experimental method .

Third, the sample was female students .

Fourth, the study used HOTS test which benefited the researcher in constructing her HOTS test with three skills (analysis, synthesis, and evaluation).

#### **2-5-5 Alshebel (2006)**

The aim of this research is to recognized the impact of using metacognition strategies through international network on the academic achievement and development of higher order thinking skills by girl students of syllabus mathematical programming in King Saud university. The sample consisted of two groups (18)girls students from students syllabus (456)math as a experimental group and control one .

The research resulted in the following :there were statically significant differences at the level of  $\leq 0.05$ . between the mean scores of both the control group and the experimental group in the post achievement and a higher order thinking skills test in favor of the experimental group.

This study is significant in deciding and writing the current study hypothesis as the two studies aimed to enhance the students' HOTS. It helped the researcher very much. In constructing the study tool . But the sample was different from the current study, Alsheble study applied on the students in the university stage .

### **2-5-6 Arafat (2011)**

The present study aimed at investigating the effects of using a Learning Circle- Based Program on Developing Higher order Thinking Skills of Minia Eight Graders. Seventy students were randomly divided into two groups: an experimental group and a control one. The experimental group was taught using the Learning Circle-Based program while the control one received conventional methods in writing. The tools of the study included a Learning Circle- Based Program, a higher order thinking test, and the higher order thinking skills and sub skills questionnaire. Equivalence between the experimental and the control groups on the dependent variables was ensured by using “ t-test”. The results showed that subjects of the experimental group achieved higher improvement than the control one on the post test of higher order thinking.

Reviewing this study enriched the researchers' background especially on deciding the method for analyzing the collecting data . T-test was the most appropriate one to achieve a quick and accurate result .furthermore, the two studies shared in their aims which was helped the students in acquiring HOTS.

### **2-5-7 Armanita (2014)**

The objective of this experimental research was to find out the effect of applying HOTS on students' achievement in reading comprehension at SMKN .1 Kuala Tungkal in Twelfth grade academic year 2013/2014.The method used in this research was pre-experimental that was one group pretest and post-test design. The population of the research was the twelfth graders student of SMKN. Purposive sampling technique was used in selecting the sample of this research. Because of the necessity of the text understanding by Secretary Major, the researcher purposively chose the Secretary Major as an experimental class. Pre-test was administered before treatment to get the first data (pre-test score), while another data (post-test score) got from the test after the treatment. The instrument to collect the data was a reading test in form of sort answer. After the data were collected, the researcher used t-test to analyze the data. The result of the analysis showed that the value of t-test (6,547) was bigger than the value of t-table (2,032) at the degree of freedom 34 and the level confidence0,05. It means that the null hypothesis was rejected and alternate hypothesis was accepted.

It can be concluded that HOTS helps students to improve the students; reading comprehension. Therefore, it was suggested to the teacher to used this strategy in teaching reading comprehension.

This study is different in its aim from the current one . This study tried to show the effectiveness of HOTS on achievement . The researcher got a useful information about the strong relationships between the HOTS and the reading comprehension. These information was very closed to the main concern of the current study. In addition, there was some similarities between Armanita study and the current one such as using an experimental method and constructing a pre- post HOTS test.

### **2-5-8 Dawood ( 2008)**

This study attempted to shed light on the effects of using technical cooperative Learning on developing preparoty school student achievement and some of the higher-order thinking skills and their attitude toward geography. The subjects were randomly divided into two groups: an experimental group and a control one. The experimental group was taught using technical cooperative learning while the control one received traditional methods. The tools of the study included a higher order thinking test, achievement test ,and attitude scale .The results showed appositve effect of the strategy ,but there were no significant differences in the attitudes toward geography.

Dawoods' study is similar with the current study in many things :

First, its tried to improve the students' higher order thinking skills.

Second, the sample was from the preparatory stage .

Third, it used an experimental method.

Fourth, the tools for collecting data was a HOTS test and an attitudes scale.

Fifth, there was no statistically significant differences in the experimental students' attitudes after the experiment .



### **2-5-9 Elmoher (2006)**

The purpose of this study was investigating the effectiveness of interactive thinking tools in the development of higher order thinking levels of Bloom's cognitive levels among tenth grade students. The population of the study were (360) tenth grade students. A sample of (40) students were randomly divided into two groups: an experimental group consist of (20) and a control group consist of (20). The experimental group was taught using the interactive thinking tools while the control one received conventional methods. The tools of the study included a higher order thinking test, and the higher order thinking skills and sub skill questionnaire (analysis, synthesis and evaluation). The results showed the experimental group improvement in the post test of higher order thinking. Also there were no significant differences between the two groups due to the gender or average of achievement.

This study classified the HOTS skills (analysis, synthesis and evaluation) which benefited the researcher to design a check list and the test of HOTS test. There are similarities between this study and the current one in conducting an experimental method and also sharing the same aim which was "developing HOTS among preparatory students stage".

### **2-5-10 Fensham, &Bellocchi (2013)**

This study reported the extent to which chemistry examinations from four Australian states align and facilitate the intended higher-order thinking skills stipulated in curriculum documents. Through content analysis, the curriculum goals were identified for each state and compared to the nature of question items in the corresponding examinations. Categories of higher-order thinking were adapted from the OECD's PISA Science test to analyze question items. There was considerable variation in the extent to which the examinations from the states supported the curriculum intent of developing and assessing higher-order thinking. Generally, examinations that used a marks-based system tended to emphasize lower-order thinking, with a greater distribution of marks allocated for lower-order thinking questions. Examinations associated with a criterion-referenced examination tended to award greater credit for higher-order thinking questions. The level of complexity of chemistry was another

factor that limited the extent to which examination questions supported higher-order thinking.

This study is different in its aim from the current one, this study tried to show the extent to which chemistry examinations from four Australian states align and facilitate the intended higher-order thinking skills stipulated in curriculum documents. And different from the current study in using the method of descriptive analysis. The researcher benefited from this study in conducting her tools.

### **2-5-11 Gazy ( 2012)**

This study designed to see the effectiveness of using brainstorming strategy in developing the achievement of grammatical rules and some higher order thinking skills among preparatory stage students Sixty female students were randomly divided into two groups: an experimental group consisting of( 30) students and a control group consisting of (30) students . The experimental group was taught using the brain storming strategy while the control one received conventional methods. The tools of the study included a higher order thinking test, and achievement test . The results showed that the experimental group achieved higher improvement than the control one on the post test of higher order thinking test.

Gazy' study is similar with the current study in many things:

First, its tried to improve the students' higher order thinking skills

Second, the sample was from the preparatory stage and they are female student s.

Third, it used an experimental method.

Fourth, the tools for collecting data was a HOTS test.

### **2-5-12 Heong , et al (2011)1**

This research was to identify the perception of the level of Marzano higher order thinking skills among technical education students in Faculty of Technical Education (FPTek), University Tun Hussein On Malaysia. A total of 158 students of FPTek were randomly selected as a sample. A set of adapted questionnaire from Marzano Rubrics for Specific Task or Situations was used as a research instrument. This is a

quantitative research and the gathered data were analyzed using Statistical Package for Social Sciences (SPSS) software. The findings indicated that students perceived they had a moderate level for investigation, experimental inquiry and invention. However, decision making and problem solving were at low level. The Eta analysis indicated that there was a very low positive relationship between the level of Marzano Higher Order Thinking Skills and gender, academic result as well as socio economic status. Besides, the findings also showed that there was no statistically significant difference in gender, academic result and socio economic status on the level of Marzano Higher Order Thinking Skills. However, there was significant difference in socio economic status on the level of decision making.

Reviewing this study enriched the researchers' background especially on deciding the method for analyzing the collecting data . T-test & SPSS was the most appropriate one to achieve a quick and accurate result . Furthermore, the two studies shared in their aims which was helped the students in acquiring HOTS. The sample was the students in the university .In addition, the main tool for this study was questionnaire which helped the researcher to prepare her study questionnaire .

#### **2-5-13 Heong, Yunos, et al (2012)**

The purpose of this research was to analyze the needs of learning higher order thinking skills for generating ideas among technical students based on the opinions of academic staffs. The findings indicated that deadlock of ideas is the most important factor in the difficulty in generating ideas among these students. The difficulty of generating ideas is a key factor in affecting the achievements of the students' assignments. Thus, students need to learn higher order thinking skills to address the difficulty in generating ideas.

The most beneficial point from this study, that the students need to learn higher order thinking skills to address the difficulty in generating ideas .The sample was the university students .The aim for this study was enhancing students' HOTS .

#### **2-5-14 Hopson (2002)**

This study examined the effect of a technology-enriched classroom on student

development of higher-order thinking skills and student attitudes toward computers. A sample of 80 sixth grade and fifth-grade students was tested using the Ross Test of Higher Cognitive Processes and , a survey using the Computer Attitude Questionnaire. The creation of a technology enriched classroom environment appears to have had a positive effect on student acquisition of higher-order thinking skills. This study identified several implications related to classroom design to enhance the development of higher-order thinking skills.

Hospons' study is similar with the current study in many perspectives:

First, its tried to improve the students' higher order thinking skills

Second, the sample was from the preparatory stage and they are sixth & fifth graders.

Third, it used an experimental method.

Fourth, the tools for collecting data was a HOTS test and an attitudes scale.

### **2-5-15 Kamel (2003)**

The research conducted to find out the effectiveness of using cognitive maps. Strategy in developing levels of thinking in teaching English reading for secondary school students. The experimental method was used to measure the effectiveness of the cognitive maps strategy .The experimental group was taught using de bono six thinking hats techniques while the control one received traditional methods in teaching. The Sample from first year secondary school students assigned as the experimental group consisting of (25 ) and the control group consisting of (23) students from Elslam female secondary school . The tools of the study was a thinking test. The results showed that cognitive maps strategy made significant differences between the experimental group and the control one in favor of the experimental group.

This study is similar in its aim with the current one . Furthermore, this study used an experimental method and constructed a HOTS test which informed the researcher many useful issues . And different from the current study in its sample which was the secondary school students.

## **2-5-16 Neil (2010)**

In order to further characterized contextual factors impacting higher-order questioning, this study examined: 1) the higher-order questioning patterns of a mainstream elementary teacher; 2) her rationale for this pattern; and 3) English language learners (ELLs) perceptions of answering higher-order questions. After analyzing more than 400 questions, student surveys, and teacher and students interviews, this study found that teachers' higher-order questioning patterns may be impacted more by general theories of learning than by perceptions of learners' abilities. Additionally, data from this study suggest that ELLs perceptions of their higher-order questioning abilities is influenced by proficiency and group settings. Carol welcomed the idea of placing language learners into the same classroom as native speakers and felt that interactions between these groups would benefit all learners. Data for this qualitative study were collected over five consecutive, full-day observations. Five days were observed to allow for consistent patterns in teacher and student behavior to develop. In addition to the observations, data sources for the study included a student survey and student and teacher interviews. The findings show that teachers need to be mindful of a number of factors in order to have learners participate in higher-order questions successfully. The ELLs in this study showed apprehension about answering questions in setting where native-speakers were present. Other than these suggestions for practice, this study found that although Carol questioned the higher-order questions abilities of some ELLs, she asked more higher-order question types to these students. This could be a result of her over arching teaching philosophy, Educators need to provide thinking skills to all students especially ELLs While asking higher-order questions is one way to engage ELLs in thinking skills .

In this study, the findings show that teachers need to be mindful of a number of factors in order to have learners participate in higher-order questions successfully. This benefited the researcher a lot in deciding the research problem and the need for the study which was the importance of developing HOTS.

### **2-5-17 Nejme(2011)**

The researcher conducted this study to investigate the effect of using higher order thinking strategies on the students' reading comprehension. To achieve the study objectives, the researcher selected an appropriate reading passage and constructed a reading comprehension achievement test after reviewing several studies and adopted positive points of them. Each experimental group was taught according to one of the three higher order thinking skills (HOTS) (inferring, questioning and summarizing) while the control group was taught without using any of these skills. Afterwards, students in all groups were asked to answer the questions of the reading achievement test. The results were analyzed using two way analysis of variance, paired test, and Shafe Post-Hoc test. The findings of the study indicated significant differences in favor of the experimental groups taught using the (HOTS) strategies. The findings also revealed significant differences in the reading achievement test scores attributed to sex and no significant differences attributed to the interaction of sex with strategy. In the light of the findings, the researcher recommended that teachers should give more attention to the (HOTS) strategies. She also recommended further research to investigate the effects of other (HOTS) strategies.

Reviewing this study had enriched researchers' background . Especially, in the strong relationships between the higher order thinking skills and the reading comprehension which was the main concern of the current study. But, according the aim of this study which was developing the reading comprehension through using HOTS. Unlike the current study which aimed to developed HOTS through reading. Nejme's study used an experimental method and constructing HOTS test but, it used different subs kills of HOTS "inferring, questioning and summarizing".

### **2-5-18 Qotat ( 2005)**

This study tried to investigate the effectiveness of organizing the physics content and using the problem solving style and Guided Inquiry on acquiring physics concepts and higher order thinking among primary stages in Jordan. The researcher use the quazi experimental method . He chose the sample of the student (the ninth graders

from two schools in Jordan, three classes from one school as experimental groups and the last class from the other school as a control group one. ANOVAs was used to analyze the results. The finding showed positive effect on the experimental groups.

According to Qotate study, it used quazi experimental method . He applied the strategies on three groups therefore, he used (ANOVA) test not (T) test . The similarities between this study and the current one was trying to enhance HOTS among preparatory stage and constructing a HOTS test which was very useful to the current studys' researcher .

### **2-5-19 Radwan (2003)**

The current study aimed at investigating the effects of using a suggested program to develop formalist visualization and higher-order thinking skills among secondary school students .Eighty seven students were randomly divided into two groups: an experimental group (45) students and a control group (43)students . The experimental group was taught using. A suggested program while the control one received instruction using a traditional method. The tools of the study included a higher order thinking test, and the higher order thinking skills and formalist visualization scale. The results showed that the suggested program affected positively the experimental group which achieved a higher improvement than the control one on the post test of higher order thinking and formalist visualization scale too.

Radwans' study suggested a program to enhance HOTS unlike the current study which used a certain strategy to developed HOTS . This study is similar in its aim with the current one . Furthermore, this study used an experimental method and constructed a HOTS test which informed the researcher many useful issues . And different from the current study in its sample which was the secondary school students .

### **2-5-20 Salem ( 2011)**

The study concerned itself with using teaching strategy in social studies for developing higher order thinking skills and spatial ability among preparatory stage students. The descriptive analytical method was used and the experimental method

also was used to measure the effectiveness of the suggested programme . The experimental group was taught using direct teaching strategy while the control one received a traditional method in teaching. The tools of the study included a higher order thinking test, and the spatial ability test . After implementing the program, the results showed that direct teaching strategy made significant differences between the experimental group and the control one in the higher order thinking skills and in the spatial ability in favor of the experimental group.

This study is similar in its aim with the current one . Furthermore, this study used two methods to collect the data (an experimental method and analytical method) . The HOTS test was constructed which informed the researcher many useful issues . The current study and Salems' study implemented their strategies on preparatory students.

### **2-5-21 Seif (2012)**

This study focused on evaluating the availability of higher order thinking skills (HOTS) in the reading exercises of English for Palestine Grade 8 to find out to what extent the reading exercises in the SB and WB match the suggested criteria. To achieve the aim of the study, the researcher adopted the descriptive analytical approach. Consequently, she used two tools to collect the needed data which are: a content analysis card and a structured interview. The following findings were drawn out from the analysis of the book: Only fifteen out of the 26 items i.e., % 58 which are considered the criteria to evaluate the reading comprehension exercises in the target book '*English for Palestine Grade 8*' are available, whereas the other eleven items i.e., % 42 are completely neglected. The skills available are not well-distributed in the SB neither in the WB. In regard to the interview, there was almost agreement among the 8<sup>th</sup> grade English language teachers that there is a shortage in the HOTS in the reading exercises and they are not well-treated.

The finding of this study contributed to the fulfillment of the first purpose of the current study ; that is ; to identifying and specifying HOTS skills (analysis, synthesis, and evaluation) . And informed the researcher that there was a shortage in the HOTS in the reading exercises and they are not well-treated in English for Palestine's text books. This made the researcher looked for a strategy to overcome this shortage.



## **2-5- 22 Vijayaratnam ( 2012)**

This research explored the effectiveness of group problem solving in developing students' higher order thinking, problem solving and team skills. This is a mixed method research and the primary method is a questionnaire to determine students' attitude towards the project. The qualitative study probed deeper into students' experiences and instructor and panel of evaluators' perspectives toward the task. Data is gathered via interviews, observations, document analysis and the final evaluations. findings showed the power of small group collaboration and real world experiences in harnessing students' higher order thinking and team skills.

This qualitative study tried to developed HOTS and to achieve this aim Vijayaratnams' study used different tools:(interview, observation card, and attitudes scale). These tools especially the observation card and the attitudes scale benefited the researcher in constructing her tools for the current study.

## **2-6 General Commentary on the First Domain**

From the Previous Studies, the Researcher Concluded the Following:

There are similarities and differences between this study and the previous ones in many things. The current study agrees with the previous studies in the following:

The current study agreed with most of the previous studies on the importance of applying such strategies to improve higher order thinking skills in all levels of students (primary ,secondary and in the universities ). And disagree with other studies in their aims. Most f the previous studies agreed with the current study in using the experimental method and differs from Qotat (2005) which use quazi experimental method and differs also from Abu Humos (2013), Fensham, & Bellocchi(2013), Heong, Yunos, etal (2012), Seif (2012), Alkhozem (2011), (Heong et al (2011) quantitative study, (Neil (2010)qualitative study, as they used a descriptive analytical method. Some of the previous studies agreed with current study using (pretest and post- test an observation card and Attitude scale).Population and sample

of the previous studies were different from one study to another in number, gender and age. Hopson(2002)the only studies that agree the sample of sixth graders.

## **2-7 Studies that Addressed the Subject Question-Answer Relationships (QAR) Strategy.**

### **2-7 -1 Becker ( 2012)**

This study documents the effect of teaching the metacognitive Question-Answer-Relationship (QAR) strategy on 8th graders' reading comprehension and articulation of strategy use. An action research was designed to increase student comprehension and awareness and articulation of strategy use. Student participants received direct instruction and group activities centered on QAR over the course of 4 weeks while demonstrating their comprehension through weekly quizzes. The findings of the action research indicate instruction of the metacognitive QAR strategy could lead to overall growth in comprehension and articulation of strategy use, but should be taught alongside direct instruction of how to execute metacognitive plans.

The benefits which gained from this study was:

- identifying the aspects of QAR strategy and how to apply it especially on primary graders.
- constructing the (pre post test).
- using an experimental method .

### **2-7 -2 Cummins, et al. (2012)**

This study was conducted to show the Question-Answer-Relationships (QAR) strategy helping students develop their comprehension skill. This study looks at the effects of the QAR strategy on a small group of 4th graders. The teacher felt that all of the students would benefit from the QAR strategy by helping them comprehend what they are reading and how it applies to the questions being asked. The students showed they improved understanding of QAR and its application. They were increasingly able to create questions in all 4 sub-categories of QAR and they were becoming more confident in their own knowledge. The findings of this inquiry show how QAR can be effective. The increase in test scores with the lower-level students shows the positive

effects of the QAR strategy. QAR can give students the confidence needed to succeed. QAR can be used with larger groups in all matter of reading materials.

This study was shed light on the QAR strategy and how it contributed in developing reading comprehension among fourth graders .The study used an experimental method and constructing a (pre post test) which helped the researcher of the current study to construct her tools.

### **2-7-3 Furtado& Pastell ( 2012)**

The Question Answer Relationship (QAR) strategy equips students with tools to successfully decode and comprehend what they read. An action research project over 18 days with twenty-three kindergarteners adopted exposure to QAR's "In the Book" and "In my Head" categories with similar questions for each of two popular Aesop's fables. The challenges and outcomes are presented with special emphasis on teacher-preparation, teacher-reflections, and a hands-on, day-by-day project-implementation. An oral pre-test, after reading *The Tortoise and the Hare* , served as a baseline assessment for student-comprehension levels. The QAR strategy was then explicitly taught, with opportunities to practice the comprehension skills in small and large groups with parental assistance. Students overwhelmingly scored higher on the post-test reading comprehension after the read-aloud of *The Jay and the Peacock* with some receiving perfect scores.

Reviewing this study informed the researcher of the current one that the QAR strategy can be applied on the kindergarteners students . This means that this strategy suitable for all levels . The Furtado& Pastell used an experimental method and constructing apre- post test.

### **2-7 -4 Gladys (2011)**

This study investigates the relative effectiveness of preparation assistance – reflection and question – answering relationship strategies on primary pupils learning outcome and their attitude to reading comprehension. It investigates the interaction effects of verbal ability and gender. The study adopted the pre – test and post – test control quasi – experimental designs and the 3 x 3 x 2 factorial matrix. A total of 370 pupils

from year five and year six, randomly drawn from public primary schools in Ibadan North Local Government Area of Oyo State for the study. The statistical level of confidence of 5% was used for the determination of analysis and decision. The results show that there are significant effects of instructional strategies on pupils' reading comprehension skills and their attitude to reading generally. It further shows that, pupils in the PAR segment had higher mean scores, followed by pupils in the QAR segment while pupils in the conventional segment had the least score. The study also reveals that, there is significant positive effect of instructional strategies on the verbal ability segment, while the low ability segment did show very low level effect of instructional strategies. There was no significant effect of gender on pupils' learning outcomes in reading comprehension and their attitude to reading comprehension. The study conclude that the teaching of reading comprehension in primary schools can produce a positive outcome if relevant and appropriate strategies are used in the teaching process.

This study aimed to improve reading comprehension through using QAR strategy among primary stage students . Gladly constructed a pre post test and attitudes scale, which benefited the researcher of the current study in constructing her tools.

### **2-7 -5 Kinniburgh & Prew (2010)**

Question Answer Relationships (QAR) can be taught effectively to students in the primary grades for the purpose of laying a strong foundation for reading comprehension. In this action research study, a kindergarten, first, and second grade teacher, along with a special education teacher, implemented the QAR strategy in their classrooms over a four week period.. There was a total of 69 students in the study. The teachers were trained in the strategy prior to implementing it in their classrooms. They were shown engaging methods of implementing the QAR with young students. Support was then provided to them throughout the entire implementation period. The results indicate that the QAR strategy, if implemented effectively, can increase comprehension of young students and provide a strong foundation for reading comprehension .

Reviewing this study informed the researcher of the current one that the QAR strategy can be applied on the kindergarteners, first and second grade students. This means that this strategy is suitable for all levels. Kinniburgh & Prew used an experimental method and constructed a pre- post test

### **2-7 -6 Leah & Hardiansyah (2008)**

This study investigates the influence of Question – Answer – Relationship strategy on 8th grade Junior High School to foster reading comprehension in reading text. The study used the pretest and posttest control as quasi experimental designs. The population is nine classes as a control and experimental class consisting of 40 students each class. This study took two classes as the sample in SMP N 7 Kota Cirebon. The statistical level of confidence of 5% was used for the determination of analysis and decision. The results show that there are significant effects by using the strategy toward students' reading comprehension in reading text. Looking at the score, most of the students who got the treatment using QAR strategy got higher score than the class which used reciprocal strategy. The study reveals that there are some significant positive effects the students got by applying this strategy. First, most of the students responded to what the teacher instructed by asking and answering the questions based on or out of the reading text. Second, they are able to be active in teaching learning process by asking and answering their own questions to other groups intended. Therefore, it reflects that they comprehend what they ask and should answer. The study concludes that using QAR can foster students' comprehension in reading text or they can comprehend the questions of the text and also be active in the teaching process.

This study reveals that applying QAR strategy improved the students' reading comprehension ability. Such these positive effects encouraged the researcher of the current study to apply QAR strategy in her study.

### **2-7 -7 Murtado (2011)**

From the result of the preliminary study conducted to the students at MTs Miftahul Huda Curugbitung, it was found that:

(1) the students had difficulty in identifying explicit and implicit information,

- (2) the students had difficulty in identifying the main idea,
- (3) the students had difficulty in identifying the moral value of a narrative text"

Thus, this action research was done to find the solution to overcome the students problem in reading comprehension" through the Question-Answer Relationships' This strategy was selected because it was believed to be able to facilitate students apply the higher level thinking and to facilitate gaining higher achievement" . In conducting the research, the researcher was the practitioner while the collaborator became the observer" The subjects of the research were 20 students of the eighth grade of MTs Miftahul Huda Curugbitung in the 2010/2011 academic year" The research was carried out in two Cycles by following the action research procedure, I "e", planning, implementation, observation, and reflection" Each Cycle was carried out in four meetings" Three meetings were conducted for implementing the strategy and one meeting was conducted for test" The data of the research were gathered using observation checklist, field note, and reading comprehension test" .The criterion of success was if 70% students gained 10 points from reading comprehension test". The findings also showed that QAR strategy improved students reading comprehension ability" The improvement could be seen from the students gain score: 45 % of students gained 10 points in Cycle 1 and 75% of students gained 10 points in Cycle 2" In Cycle 2, 25% of students gained. What based on the findings from the two cycles the teacher-researcher drew a conclusion that the Question-Answer Relationships(QAR) strategy improved reading comprehension skills.

This study is the most similar study to the current research in many areas:

- The aim which was to investigate the impact of using QAR on the students' HOTS and reading comprehension.
- The sample was from primary stage .
- The main tool was (pre – post test).

### **2-7 -8 Padrón (1992)**

The present study investigated the extent to which two instructional approaches (i.e., Question-Answer Relationships and Reciprocal Teaching) enhanced Hispanic bilingual students use of cognitive reading strategies. The results indicated differences

in the use of cognitive reading strategies by grade and treatment group. The subjects in the present study were 89 third, fourth, and fifth grade Hispanic bilingual students ranging from eight to twelve years of age. There were 23 third graders, 35 fourth graders, and 31 fifth graders. It was suggested that perhaps teaching one or two strategies over several weeks is most beneficial. This type of strategy instruction transfers control to the students and decreased the dependence on teacher-provided cues for strategy use. The results from the present study suggest that approaches such as Question-Answer Relationships and Reciprocal Teaching which provide scaffolding may be important instructional strategies that should be considered for second language students.

Pardons' study investigated the QAR strategy on improving reading comprehension skills among 3-4-5 graders. The recommendation of this study encouraged the current study's researcher to apply QAR strategy in her study and test its positive effectiveness.

### **2-7 -9 Peng, et al (2007)**

This study an action research project which involves using Question-Answer-Relationships (QAR) to improve reading comprehension. Research has shown that using QAR provides pupils a systematic way of analyzing task demands of different question probes which in turn can improve reading comprehension. The study which was carried out with Primary 6 pupils using a model of instruction based on Raphael's (1984) recommendations to introduce and practice the use of the QAR strategy over a period of 10 weeks. Through the quantitative data analysis of pupils' performance in a pre and post-test, the findings showed that students taught the QAR strategy showed some improvement in their reading comprehension test scores after intervention compared to the control group. The area of greatest improvement was with the 'Think & Search' questions. The qualitative data analysis showed that more than half the pupils taught the QAR strategy felt more confident about answering comprehension questions after learning the strategy.

Reviewing this study the researcher gained an important benefits regarding the features and persuaders of QAR strategy. Furthermore, this study followed an

experimental method and constructed (pre –post test) and this helped the researcher of the current study to prepare her tool.

### **2-7 -10 Stafford ( 2012)1**

This experimental research study examined the effects of the Question-Answer Relationships (QAR) taxonomy on ninth-grade students' ability to answer comprehension questions. Participants included 32 incoming ninth-grade students who were required to attend summer school due to poor attendance, grades, and/or standardized test scores. Participants were randomly assigned to experimental and control groups. Experimental group participants received one week of initial strategy instruction followed by three weeks of maintenance activities. Results indicated that the strategy had a negative effect on students' question-answering ability and raised questions regarding comprehension instruction, length of interventions, and the role of scaffold support for a target population of adolescent readers.

This study aimed to improve reading comprehension through using QAR strategy among 9<sup>th</sup> grade students . Stafford constructed a pre post test and attitudes scale, which benefited the researcher of the current study in constructing her tools.

### **2-7-11 Strahler& Brianna (2008).**

The researcher of this study explained how the Question-Answer-Relationship (QAR) could be integrated into a classroom .Many teachers find it difficult to integrate technology into the learning environment when they have to focus on improving learners' literacy achievement. Teachers are finding that technology can be used as a tool to support students' literacy skills. Merging technology and literacy strategies strengthen learners' reading comprehension while enhancing their critical thinking skills, establishing positive relationships among students, and supporting content learning. Consequently, creating learning environments that facilitate the development of literacy skills through technology is crucial to cultivating students' literacy development.

Strahler& Brianna using QAR and technology which can be integrated together in any classroom to promote higher level thinking and reading comprehension.



## **2-7 -12 Wiwin & Supandeni ( 2013)**

This study is an experimental study on the tenth year students of Saraswati Senior High School Seririt in the academic year 2012/2013, which aimed to investigate whether there was (1) there an interactional effect through teaching narrative and descriptive text using QAR techniques and DRTA techniques of the first year students of SMA Saraswati Seririt; 2) was there a significant difference on the students' reading competency who were taught by using QAR and DRTA techniques in narrative text of the first year student of SMA Saraswati Seririt in the academic year of 2012/2013; 3) .Is there significant difference in students' reading comprehension between Question Answer; 4) was there an interactional effect through teaching narrative and descriptive text using QAR techniques and DRTA techniques of the first year students of SMA Saraswati Seririt. In analyzing the data ,2X2 factorial design was used and involved 140 students as sample. The data were collected through reading test and analyzed by Two-way ANOVA . Research result indicated that (1) there was a significant interactional effect between the teaching techniques applied and text types; (2) there was a significant difference in reading achievement between students who were taught by using QAR technique and those taught by using DRTA technique in descriptive text type; and (3) there was a significant difference in reading achievement between the students who were taught by using QAR technique and those taught by using DRTA technique in narrative text type; (4) there was a significant difference in reading achievement between the students who were taught by using QAR technique and those taught by using DRTA technique.

Reviewing this study informed the researcher of the current one that the QAR strategy can be applied on the university students . This means that this strategy can be applied on all levels and gained appositve impact .

## **2-8 General Commentary on the Second Domain**

From The Previous Studies the Researcher Concluded the Following:

**2-8-5 -1-** According to the previous study, it indicates that HOTS could be improved by using QAR strategy .

**2-8-5 -2-** The previous studies stated that understanding the relationship between questions and the answers for it is helpful for both teachers and students .

**2-8-5 3-** The recommendations of the previous studies highlighted the importance of considering such techniques and strategies in improving the students' HOTS.

**2-8-5 -4-** Most of the studies ,the first domain, assured the need to support HOTS.

**2-8-5 -5-** Most of the studies ,the second domain, confirms the effectiveness of the QAR strategy on enhancing the reading comprehension. This helped the researcher to determine the recommendations for further studies.

### **2-9 General Commentary on the Previous Studies in all Domains:**

**2-9-6 -1-** The previous studies classified the HOTS skills which benefited the researcher to design a check list and the test of HOTS skills.

**2-9-6 -2-** It is worth admitting that the previous studies were very helpful to the researcher in conducting this study as they enrich the educational background of the researcher concerning HOTS skills and QAR strategy .

**2-9-6 - 3-** These previous studies are considered a guide for the researcher because they help her to design the procedures and steps of the study.

**2-9-6 -4-** The previous studies were helpful for the researcher to determine the tools of the study such as: the HOTS checklist, the attitudes questionnaire and the HOTS test. In addition, they helped the researcher to decide the statistical treatments of the results.

### **2-10 This Study is Characterized by the Following:**

-This study concentrates on enhancing HOTS only in reading.

-As far as the researcher knows, it is the first study to be conducted in Gaza's universities, which deals with QAR strategy.

# **Chapter III**

## **Methodology**

### Chapter III Methodology

The purpose of this study is to examine the impact of using Q.A.R strategy to enhance 6<sup>th</sup> graders higher order thinking skills in reading and to measure their attitude toward it. This chapter covers the procedures followed throughout the study. It gives a complete description of the methodology of the study, the population, the sample, the instruments used to collect data, the pilot study, and a description of the Q.A.R strategy used in the study.

#### 3-1 Type of Research Design:

The researcher adopted the experimental design in order to meet the nature of the research, which attempted to explore the effect of using Q.A.R strategy on developing Palestinian sixth graders' higher order thinking skills in reading and their attitude toward it. To achieve the purpose of this study, two groups were assigned as the participants of the study: an experimental group and a control group. The experimental group was taught reading through the use of Q.A.R strategy while the control group was taught reading through the traditional method, which focused on giving students model in reading without focusing on the higher order thinking skills in reading. The experiment lasted for 6 weeks. See figure (5).

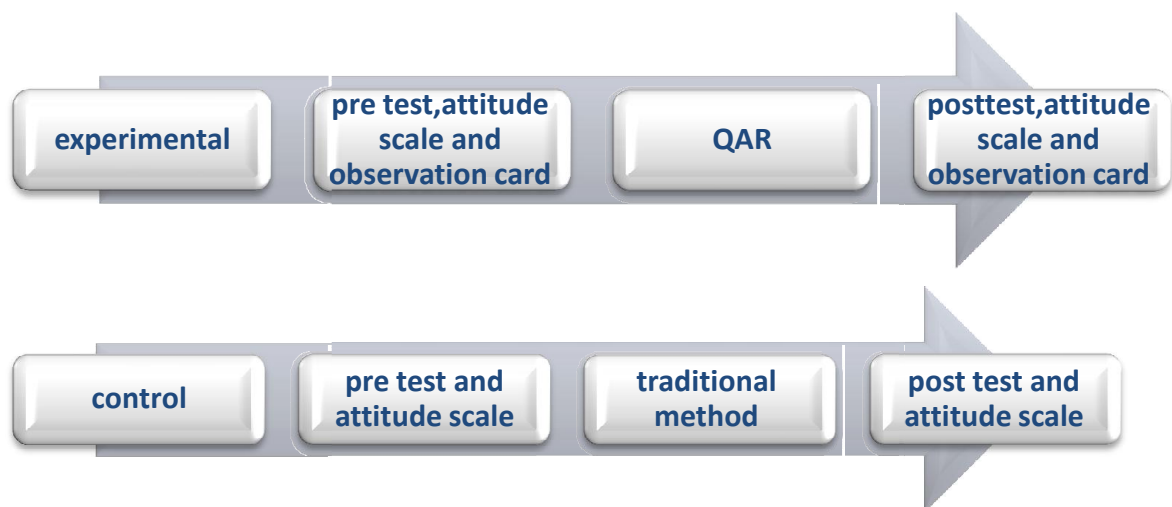


Figure (5) research design

### 3-2 Population:

The population of the study consisted of all sixth female students enrolled at the UNRWA schools Beit Hanoun area in the north of Gaza strip (2013-2014).

#### 3-2-1 Sample:

The sample of the study consisted of (77) female sixth grade students distributed into two groups at Beit Hanoun Elem Coed "A" ' School. One of the groups represented the control group of (39) students; and the other represented the experimental one of (38) students. The researcher used a sample from Beit Hanoun Elem Coed "A" ' School.. The researcher carried out the experiment with co-operation of the English language teacher of the sixth graders at the school .

They were equivalent in their English language achievement. They were equivalent in accordance with the statistical treatment of their results in the pre application of the higher order thinking skills test . In addition they were equivalent in their attitudes toward reading in accordance with the statistical treatment of their results in the pre application of the attitude scale .The sex variable of the sample was also controlled ,The sample were female student .

(table 3-1)

### The Sample of Control and Experimental Groups

School	Class	ex/ con	Student number
Beit Hanoun Elem Coed "A" ' School	6/2	experimental	38
	6/1	Control	39
Total	2class		77

### 3-3 Variables of the Study:

The study included the following variables:

#### 3-3-1 An Independent Variable:

The independent variable in this study is the teaching method:

-The Q.A.R strategy

-The traditional method

#### 3-3-2 Dependent Variable:

1-The dependant variable is represented in the higher order thinking skills in reading

2-the students' attitudes towards reading.

### **3-4 Instruments:**

To attain the purposes of the study, the researcher utilized three tools: She prepared a pre-post higher order thinking skills in reading test covering certain skills analysis, synthesis, and evaluation. In addition, she designed a pre-post, an attitude scale to identify the students' attitudes toward reading, and observation card to observe the improvement of the student in acquiring HOTS in reading class through using QAR strategy .

#### **3-4-1- Higher Order Thinking Skills Test see appendices (9):**

##### **3-4-1-1 Objective of the Test:**

A pre-post higher order thinking skills test was prepared by the researcher to measure the students' higher order thinking skills in reading in both the control and experimental groups. Being used as a pre test, it aimed at proving that both groups were equal in terms of higher order thinking skills in reading performance according to certain skills analysis, synthesis, and evaluation. Then being used as a post test, it aimed at identifying any possible progress and difference in higher order thinking skills in reading of both groups.

##### **3-4-1-2 Items of the Test:**

The test was divided into two parts. Each part consisted of one reading text with 14 items from the English for Palestine for sixth graders topics . Test items represented three types of skills analysis, synthesis, and evaluation selected from materials for the sixth graders in the second semester. They were written in English. They were concise, easy to comprehend, and free from any probable vagueness. They included information about the purpose of the test, the time permitted to complete the test, and the criteria on which scoring would be based. Moreover, the test was scored analytically by using an analytic scoring rubric six items were assigned in the test for analysis, five items were assigned in the test for synthesis, three items were assigned in the test for evaluation in each part of the test . The total number of the items of the test was twelve items that were assigned in the test for analysis, ten items were assigned in the test for synthesis, and six items were assigned in the test

for evaluation. Twenty eight items were the total items of the test. The items were equal in weight. They are listed in the table of specification below.

(table 3-2)  
**The Table of Specification of Higher Order Thinking Skills in Reading**

Parts of the test	Scope	numbers	item numbers	Percentage
Part1	Analysis	6	11-8-4-3-2-1 -\	%43
	Synthesis	5	14-10-9-6-5	%36
	Evaluation	3	13-12-7	%21
	Total	14	Total	%100
Part2	Analysis	6	8-7-4-3-2-1	%43
	Synthesis	5	14-10-9-6-5	%36
	Evaluation	3	13-12-11	%21
	Total	14	Total	%100
Part1+ Part2	<b>Total Parts of the test</b>			
	<b>Scope</b>	<b>Numbers</b>		<b>Percentage</b>
	Analysis	12		%43
	Synthesis	10		%36
	Evaluation	6		%21
	Total	28		%100

### 3-4-1- 3 Validity of the Test:

Al Nabhan (2004, p.272) states that a valid test is the test that measures what it is designed to measure. The researcher used the referee validity and the internal consistency validity in order to prove that the test was valid to be applied in the study

#### A. The Referee Validity:

The test was introduced to a panel of specialists in English language and methodology in Gaza universities, and experienced headmasters and teachers at (UNRWA) schools. The items of the test were modified according to their recommendations

**B. The Internal Consistency Validity:**

Al Agha and Al Ostaz (2003, p.110) state that the internal consistency validity indicates the correlation of the score of each item with the total mean score of the test (table 3-3). It also indicates the correlation of the mean scores of each scope with the total mean scores (table 3-4).. This validity was calculated by using Pearson Formula., the coefficient correlation of each item within its domain is significant at (0.01) and (0.05)levels. Thus, it can be concluded that the test is highly consistent and valid as a tool for the study.

(table 3-3)

**Correlation Coefficient of Every Item of the Test with the Total Score of the Test.**

Part1	Skill	Correlation Coefficient	Part2	Skill	Correlation Coefficient	total	Skill	Correlation Coefficient
	Analysis	** 0.882		Analysis	** 0.817		Analysis	** 0.876
	Synthesis	** 0.831		Synthesis	** 0.753		Synthesis	**0.839
	Evaluation	** 0.621		Evaluation	** 0.815		Evaluation	** 0.7830

\*r table value at df (30) and sig. level (0.05) = 0.349

\*\*r table value at df (30) and sig. level (0.01) = 0.44



**Table (3-4)**

**Correlation Coefficient of the Average of Each Scope With the Total Average**

Part 1	Skill	Question number	Correlation Coefficient	Part2	Skill	Question number	Correlation Coefficient
	Analysis		1		** 0.721	Analysis	
2			** 0.706	2	** 0.606		
3			**0.628	3	* 0.410		
4			** 0.643	4	* 0.430		
8			** 0.618	7	** 0.622		
11			*0.427	8	** 0.607		
Synthesis		5	** 0.584	Synthesis		5	** 0.506
		6	** 0.623			6	** 0.524
		9	** 0.761			9	** 0.821
		10	** 0.785			10	** 0.761
		14	**0.548			14	** 0.504
Evaluation		7	** 0.590	Evaluation		11	** 0.765
		12	** 0.673			12	** 0.695
		13	** 0.570			13	** 0.651

\*r table value at df (30) and sig. level (0.05) = 0.349

\*\*r table value at df (30) and sig. level (0.01) = 0.44

**3-4-1- 4 Reliability of the Test:**

Mackey and Gass (2005, p.128) state that the test is considered as reliable when it gives similar results if it is administrated twice in the same conditions. The reliability of the test was measured by Spilt- Half and the Richardson and Kuder 20techniques

**A- Using Split-Half Method:**

Mackey and Gass (2005, p.130) state that the Split-Half method depends on getting a correlation coefficient through comparing the performance on half of a test with performance on the other half. This is carried out by correlating even-numbered items with odd-numbered items and modified by Spearman- Brown prophecy formula.

### Split-Half Coefficients of the Test

the Spilt- Half coefficient is (0.840) .This indicates that the test is reliable to be applied in the study.

(table 3-5)

**Split-Half Coefficients of the Test**

Total degree of the test	Item Number	BEFORE	AFTER
	28	0.724	0.840

The Spilt- Half coefficient is (0.840) .This indicates that the test is reliable to be applied in the study.

### B) Richardson and Kuder 20 (K-R20)

(K-R20) depends on calculating the percentages of correct answers to the test items, and also on the variance of every item

### Richardson and Kuder

(table 3-6)

**(K\_R20) Coefficients for the Test Domains**

Item N	$\sum \epsilon$	N/N-1	TOTAL (K_R20) coefficient
28	48.542	1.037	0.87

TOTAL (K\_R20) coefficient 0.87This indicates that the test is reliable to be applied in the study.

### 3-4-1-5 The Pilot Study:

For the sake of checking the suitability and appropriateness of the test in terms of time, difficulty and discrimination coefficients, the test was held (as a pilot test) on a randomly selected group of 30 female students who had similar characteristics to the target groups, control and experimental. These three groups studied at the same area in Beit Hanoun schools . The results were recorded and statistically analyzed to measure their validity and reliability .The items of the test were modified in light of the statistical results. The researcher used the following equation to compute the test time.

The test time = The time needed for the 1st student to leaves the room+ the time needed for the last student to leave the room/2

After applying the equation, the researcher found that the time needed for the pre-test to be applied was (80)minutes.

### **3-4-1-6 Difficulty Coefficient:**

This represents the percentage of students who didn't answer correctly to the total students who answered the test correctly. The difficulty coefficient of a test was computed according to the following equation:

$$\text{Difficulty Coefficient} = \frac{\text{No. students who didn't answer correctly}}{\text{Total number of students who answered the test correctly}} \times 100$$

### **3-4-1-7 Discrimination Coefficient:**

Discrimination coefficient means that the test has the ability to differentiate between the high achievers and the low ones(O`dah, 2002, p.125). The discrimination coefficient of a test item was computed according to the following equation:

$$\text{Discrimination Coefficient} =$$

$$\frac{\text{No. of the students who have the correct answer among the high achievers}}{\text{No. of high achieving students}} -$$

$$\frac{\text{No. of the students who have the correct answer among the low achievers}}{\text{No. of low achieving students}}$$

shows the discrimination coefficient for each item of the test (table 3-7).

(table 3-7)

**Difficulty Coefficient and Discrimination Coefficient for Each Item of the Test**

Part 1				Part2			
N	Skill	Difficulty Coefficient	Discrimination Coefficient	N	Skill	Difficulty Coefficient	Discrimination Coefficient
1	Analysis	0.78	0.78	1	analysis	0.63	0.89
2		0.78	0.67	2		0.50	0.44
3		0.28	0.78	3		0.28	0.26
4		0.47	0.67	4		0.28	0.25
8		0.50	0.78	7		0.23	0.56
11		0.80	0.26	8		0.66	0.56
5	synthesis	0.22	0.33	5	synthesis	0.34	0.33
6		0.41	0.33	6		0.34	0.27
9		0.59	0.67	9		0.63	0.78
10		0.75	0.56	10		0.69	0.67
14		0.80	0.44	14		0.79	0.33
7	evaluation	0.41	0.78	11	Evaluation	0.53	0.78
12		0.80	0.28	12		0.78	0.56
13		0.22	0.25	13		0.56	0.78
<b>Mean</b>		0.56	0.54	<b>Mean</b>		0.52	0.53
Total Difficulty Coefficient Part 1 +Part2						0.54	
Total Discrimination Coefficient Part 1 +Part2						0.53	

**The Difficulty Coefficient** wobbles are between ( 0.80-0.22) with total average for part 1 of the test (0.56) and the difficulty coefficient wobbles are between(0.79-0.23)with total average (0.52) for part 2 of the test .This means that each of the items is acceptable or in the normal limit of difficulty according to the point of view of assessment and evaluation specialists. That difficulty coefficient wobbles are between(0.20-0.80)

### **Discrimination Coefficient for Each Item of the Test**

Table (3.7) shows that discrimination coefficient wobbles are between (0.78-0.25) with total average (0.54) for part 1 of the test and the discrimination coefficient wobbles are between (0.89-0.25) with total average (0.53) for part 2 of the test. This means that each item of the test is acceptable in the normal limit of discrimination according to the point of view of assessment and evaluation specialists.

#### **3-4-2 Reading Attitudes Scale see appendices (7):**

##### **3-4-2 -1 Aim of the Reading Attitudes Scale:**

This attitudes scale was prepared by the researcher in order to get data about the students' attitudes towards reading in English. This attitudes scale was administered before and after the experiment for the experimental and control groups. The attitudes scale aimed at measuring the effect of the QAR strategy on developing students' attitudes towards reading in English.

##### **3-4-2 -2 Steps of Constructing the Scale:**

The researcher constructed this attitudes scale depending on:

**3-4-2 -2- 1-** Reviewing related literature and studies about attitudes scales towards reading

**3-4-2 -2 -2-** Consulting specialized professors about attitudes in general.

**3-4-2 -2 -3** The scale included positive and negative sentences.

**3-4-2 -2 -4** At first, the scale consisted of 37 sentences distributed into three sections.

Then, the scale sentences were presented to the referee committee in order to decide the suitability of the number of the items for the sixth graders, the language used in the scale, and the extent to which the items of scale represented its aim.

**3-4-2 -2-5** At last, the scale was refereed and revised well. It consisted of (30) items distributed into three domains.

**3-4-2 -2 -6-** The researcher carried out a pilot study for this scale on a group of (30) students to assess the scale validity and reliability.

### 3-4-2 -3 Description of the Scale:

This study used a 30-item questionnaire. This tool was divided into three main domains: the first domain was about students' attitudes towards enjoying reading in English; the second domain was students' attitudes towards the importance and value of reading in English; and the third domain was students' attitudes towards the teacher of English and the method of teaching reading. Twenty one items were positive and nine were negative. Students were asked to indicate the extent of their agreement with each statement on a five-point Likert scale from strongly agree to strongly disagree. The same scale was carried out before the experiment and after the six-week intervention. Results of the pre and post scale were recorded, statistically analyzed and compared.

(table 3-8)

#### Likert Scale

Type of Item	Strongly agree	agree	I don't Know	disagree	disagree Strongly
Positive	5	4	3	2	1
Negative	1	2	3	4	5

A table (3.8) displays that a five-point Likert scale from strongly agree to strongly disagree is used in the reading attitudes scale.

### 3-4-2 -3 -1 Instructions of the Scale (for Students):

The instructions were given to students by their teacher (the researcher). Clear and simple instructions were provided in order to get students understand the items of the scale and facilitate responding to it by the students.

### 3-4-2 -3 -2 The Pilot Study:

The scale was applied on a random pilot sample of (30) students from Biet Hanoun prep "b" Girls' School in order to assess validity and reliability of the scale. The results were recorded and statistically analyzed to measure the scale validity and reliability.

### 3-4-2 -3 -3 Validity of the Scale:

In order to check the validity of the scale, the researcher used two types of validity as follows:

#### A. The Referee Validity:

The scale was introduced to a group of specialists in English language and methodology in Gaza universities, and to experienced head masters and teachers in UNRWA schools. The items of the scale were modified according to their recommendations.

#### B. The Internal Consistency Validity:

The internal consistency validity of the reading attitudes scale was calculated by using Pearson Formula. The coefficient correlation of each item within its domain is significant at (0.01) level. According to the following table, it can be concluded that the scale is highly consistent and valid as a tool for the study..

(table 3-9)

**Pearson Correlation Coefficient for Every Domain of the Scale with the Total Score of the Scale**

Domain	Correlation Coefficient	Sig. level
enjoying toward reading Attitudes	**0.790	sig.at 0.01
Attitudes toward the importance and value of learning reading in English	**0.832	sig. at 0.01
Attitudes toward the teacher and the method of teaching reading	**0.521	sig. at 0.01

\*r table value at df (28) and sig. level (0.05) = 0.349

\*\*r table value at df (28) and sig. level (0.01) = 0.449

**Correlation Coefficient for Each Item in Each Domain with the Total Score of its Domain**

**(table 3-10)**  
**enjoying reading Domain for Correlation Coefficient**

<b>Item</b>	<b>Correlation Coefficient</b>	<b>Sig. level</b>
A1	**0.578	sig. at 0.01
A2	**0.620	sig. at 0.01
A3	**0.578	sig. at 0.01
A4	**0.578	sig. at 0.01
A5	**0.578	sig. at 0.01
A6	**0.578	sig. at 0.01
A7	**0.472	sig. at 0.01
A8	**0.578	sig. at 0.01
A9	**0.493	sig. at 0.01
A10	**0.549	sig. at 0.01

\*r table value at df (28) and sig. level (0.05) = 0.349

\*\*r table value at df (28) and sig. level (0.01) = 0.449

**(table 3-11)**  
**Correlation Coefficient for**  
**The Importance and Value of Learning Reading in English Domain**

<b>Item</b>	<b>Correlation Coefficient</b>	<b>Sig. level</b>
B1	**0.633	sig. at 0.01
B2	**0.720	sig. at 0.01
B3	*0.385	sig. at 0.05
B4	**0.578	sig. at 0.01
B5	**0.607	sig. at 0.01
B6	**0.691	sig. at 0.01
B7	**0.751	sig. at 0.01
B8	**0.807	sig. at 0.01
B9	**0.711	sig. at 0.01
B10	**0.760	sig. at 0.01

\*r table value at df (28) and sig. level (0.05) = 0.349

\*\*r table value at df (28) and sig. level (0.01) = 0.449



**(table 3-12)**  
**Correlation Coefficient for the Teacher and the Method of Teaching Reading Domain**

Item	Correlation Coefficient	Sig. level
C1	*0.386	sig. at 0.05
C2	**0.664	sig. at 0.01
C3	**0.732	sig. at 0.01
C4	**0.830	sig. at 0.01
C5	**0.573	sig. at 0.01
C6	**0.469	sig. at 0.01
C7	**0.525	sig. at 0.01
C8	**0.608	sig. at 0.01
C9	*0.393	sig. at 0.05
C10	**0.661	sig. at 0.01

\*r table value at df (28) and sig. level (0.05) = 0.349

\*\*r table value at df (28) and sig. level (0.01) = 0.449

#### **3-4-2 -3 -4 Reliability of the Scale:**

The scale is reliable when it provides equal outcomes if it is re-applied in equivalent conditions. The researcher used the pilot study to calculate the reliability of the scale which was measured by Alpha Cronbach and Split-Half methods.

#### **A-Using Split- Half Method:**

The researcher calculated the correlation between the even-numbered items with odd-numbered items. Then, the researcher used Spearman-Brown formula to modify the length of the scale to find out the reliability coefficient .

**(table 3-13)**  
**Correlation Coefficient between the Two Halves of Each Domain before Modification and the Reliability after Modification**

Domain	Total	BEFORE	AFTER
Enjoying reading English Attitudes towards	10	0.723	0.839
Attitudes towards the importance and value of learning reading in English	10	0.795	0.886
Attitudes towards the teacher and the method of teaching reading	10	0.631	0.774
<b>Total</b>	<b>30</b>	<b>0.788</b>	<b>0.881</b>

The reliability coefficient by using Split- Half after modification is more than (0.881) and this indicates that the scale is reliable to be used as a tool in the study.

**A. Alpha Cronbach Method:**

**(table 3-14)**

**Alpha Correlation Coefficient of the Scale Reliability**

<b>Domain</b>	<b>Total</b>	<b>Alpha Correlation Coefficient</b>
Attitudes toward enjoying reading English	10	0.721
Attitudes toward the importance and value of learning reading in English	10	0.811
Attitudes toward teacher and the method of teaching reading	10	0.697
<b>Total</b>	<b>30</b>	<b>0.782</b>

The ranges of reliability of the three domains are above (0.782). This result indicates that the scale is suitable for conducting the study.

**3-4-3-The Third tool The Observation Checklist see appendices (6):**

**3-4-3-1 The aim of the observation Checklist:**

This observation card was prepared by the researcher to investigate the students' performance in reading class and also their performance in acquiring the hots skills while using qar strategy to get data and information, so the researcher prepared this questionnaire. This Observation Checklist was administered before and after the experiment for the experimental group.

**3-4-3 -2 The sources of constructing the observation Checklist:**

The researcher depended on different sources to construct the observation ; previous studies and experts' opinions.

**3-4-3 -3 Description of the observation card Checklist:**

This study used an **observation Checklist** of 25-items This tool is divided into three main scopes ; Scope one was about the students' use analysis skills in reading class and it consisted of( 12) items; Scope two was about the students' use synthesis skills in reading class and it consisted of (8) items; and finally scope three was about the students' use evaluation skills in reading class and it consisted of (5 )items.

Co-observer are asked to rate each item of each scope as follows:

(3) = high agree , (2) = moderate agree, (1) = low agree.

### 3-4-3 -4 The Validity of the Observation Checklist:

That valid test is the test that measures what it is designed to measure. The study used the referee validity.

#### The Referee Validity

The observation card was introduced to a group of specialists in English language and methodology in Gaza universities, Ministry of Education and experienced supervisors and teachers in UNRWA schools . The items of the observation card were modified according to their recommendations.

### 3-4-3 -5 Reliability of the observation Checklist:

To prove the reliability of the observation card statistically, the researcher used the general agreement of the observers ,who are the researcher and her colleague calculating the reliability. Each of the observers worked independently, but used the same list of the observation card items. At the end of the total period assigned for the observation, there were almost consistence in their observation results. The ratio of the agreement was calculated statistically by using Cooper equation.

$$\text{Coefficient of agreement} = \frac{\text{Number of agreement}}{\text{Numbers of agreement} + \text{Numbers of disagreement}} \times 100$$

According to that the researcher and her colleague in teaching English observed

The experimental group, and after the application of the mentioned equation,

(table 3-15)

Scope	items	Number of agreement	Numbers of disagreement	Percentage
Scope1 (analysis)	12	10	2	83%
Scope2 (synthesis)	8	7	1	87%
Scope3 (evaluation)	5	4	1	80%
Total	25	21	4	84%

From the previous table, the researcher can conclude that the highest percentage

of the agreement between the two observer was (87%) and the lowest percentage was (80.%). Consequently, the total percentage of the total percentage of the consistency was (84%) which indicated the high level of consistency of the observation cards.

### **3-5 Controlling the Intervening Variables:**

To guarantee the results' accuracy and avoid any marginal interference, the researcher attempted to control the following variables before the study:

#### **3-5-1 General achievement in English language variable:**

T-test was used to measure the statistical differences between the groups concerning their general achievement. The subjects' results in the first term test of the school year (2013-2014) were recorded and analyzed.

(table 3-16)

<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Std-deviation</b>	<b>t</b>	<b>Sig value</b>	<b>Sig levl</b>
<b>Experimental</b>	<b>38</b>	<b>67,000</b>	<b>13,224</b>	<b>0.345</b>	<b>0.731</b>	<b>Not sig</b>
<b>Control</b>	<b>39</b>	<b>67,974</b>	<b>11,308</b>			

Table 3-16 shows that there were no statistical differences at (0.05) between the experimental and the control groups concerning the general achievement in English variable.

#### **3-5-2 Group Equivalence in Term of the Pre-Test Marks:**

The researcher designed higher order thinking skills in reading test to be a pre and post, covering certain skills( analysis, synthesis, and evaluation)Then, the researcher compared the control and experimental groups after the pre higher order thinking skills in reading test to ensure the equivalence of the two groups before applying the experiment. The results were recorded and statistically analyzed. The (t) computed value, 0.562, is less than the (t) table value (0.01) and (0.05) levels in the total score of the test as well as in each skill. This indicates that there were no statistically significant differences at (0.01) and (0.05) levels between the experimental and the control groups in their previous higher order thinking skills in reading .

(table 3-17)

**Group Equivalence in Term of the Pre-Test Marks**

Group	N	Mean	Sum of Ranks	T value"	Sig. Level
Experimental	38	14.58	4.700	*0.562	not sig.
Control	39	13.95	5.130		

\*T value at df (75) and sig. level (0.05) = 1.99

\*\*T value at df (75) and sig. level (0.01) = 2.64

The (T) computed value, 0.562 is less than the (T) table value (0.05)

levels in the total score of the test and this indicates that there were no significant statistical differences between the experimental and the control groups in the higher order thinking skills in reading

**3-5-3 Group Equivalence in Term of their attitudes toward reading as measured on the attitude scale :**

The researcher designed reading attitude scale to be a pre and post, covering certain domains (Attitudes toward enjoying reading English, Attitudes toward the importance and value of learning reading in English, and Attitudes toward teacher and the method of teaching reading) Then, the researcher compared the control and experimental groups in pre application of reading attitude scale to ensure the equivalence of the two groups before applying the experiment. The results were recorded and statistically analyzed. The (t) computed value, 0.286, is less than the (t) table value (0.01) and (0.05) levels in the total score of the test as well as in each domain. This indicates that there were no statistically significant differences at (0.01) and (0.05) levels between the experimental and the control groups in their previous attitudes toward reading .

(table 3-18)

**The Students Performance of the Experimental Group and the Control Group in  
Pre Application of the Attitude Scale**

Domain	Group	No	Mean	Sum of Ranks	T value	Sig value	Sig. level
Attitudes toward enjoying reading English	control	38	3.54	0.541	*0.150	0.881	Not sig.
	experimental	36	3.52	0.550			
Attitudes toward the importance and value of learning reading in English	control	38	3.57	0.589	*0.191	0.849	Not sig
	experimental	36	3.55	0.606			
Attitudes toward teacher and the method of teaching reading	control	38	3.50	0.399	*0.447	0.656	Not sig
	experimental	36	3.46	0.4.7			
<b>Total</b>	control	38	3.55	0.403	*0.286	0.776	Not sig
	experimental	36	3.53	0.395			

\*\*\*"T" table value at df (72)and (0.05) sig. level equal 1.99

\*\*"T" table value at df (72 )and (0.01) sig. level equal 2.65

### 3-5-4 Teacher Variable:

Experimental and control group were taught by the same teacher, the researcher. This was to prevent any other factors related to the differences in the teacher from affecting the findings of the study.

### 3-5-5 Age Variable:

The students in sixth grade age in average 12-13 year.

### 3-5-6 The sex variable:

the sample was also controlled ,The sample were female student .

### 3-6 Research Procedures:

The researcher proceeded along the following procedures to meet the objectives of this study:

-Reviewing literature and previous studies related to the use of the q.a.r strategy and their effect on higher order thinking skills in reading . In addition, the researcher reviewed previous studies related to the use of new strategies in teaching and learning higher order thinking skills and their effect on students' attitudes towards reading. This is to get benefit from their samples, tools, methodology, results and

recommendations.

- Determining the instruments of the study.
- Designing the higher order thinking skills in reading test (pre and post) see appendices (9)-and refereeing its validity and reliability.
- Designing the reading attitudes scale (pre and post) see appendices (7) and refereeing its validity and reliability.
- Designing the HOTS observation card see appendices (6) and refereeing its validity and reliability.
- Obtaining permission from the Islamic University of Gaza and the Ministry of Education and Higher Education to carry out the study.
- Choosing the sample of the study that included the experimental group and the control one.
- Deciding the higher order thinking skills in reading appropriate for the sixth graders as English Foreign Language learners.
- Consulting experts and specialists in English language and methodology for refereeing the validity and the reliability of the study tools.
- Implementing a pilot study for the higher order thinking skills in reading test and the attitude scale .
- Implementing the pre higher order thinking skills in reading test to make sure that the two groups were equivalent.
- Implementing the pre attitude scale to make sure that the two groups were equivalent.
- Applying the experiment. The experiment was the use of the q.a.r strategy as a teaching strategy for the experimental group and using the traditional way with the control group.
- Observed the student development in acquiring HOTS of the experimental group.
- Carrying out the post higher order thinking skills in reading test, and the post reading attitudes scale for both groups and using statistical analysis.
- Analyzing and interpreting the results.
- Providing suggestions and recommendations in light of the results of the study.

### **3-7 Statistical Analysis:**

The attitudes scale responses and the data of higher order thinking skills in reading test were collected, computed, and analyzed by using Statistical Package for Social Sciences program (SPSS). The significance level used was (0.01). The following statistical techniques were utilized:

**3-7 -1.** Spearman correlation to determine the internal consistency validity of the test.

**3-7 -2.** kuder and Richarson 20 technique and Split-Half technique to measure the reliability of the test Split-Half technique and alpha cronpach to measure the reliability of Reading attitudes scale items ,

**3-7 -3.** Effect size level by using Eta square to ensure the effect size of the apparent significant differences between the two groups .

**3-6 -4-**Coper equation for the observation card reliability.

**3-7-5-**Wilcoxon signed ranks test to analysis observation card.

### **3-8 Summary**

This chapter presented the methodology followed in this study. It described how the study was conducted, the instruments that were used, how the data were collected, how the sample was chosen, how the data were analyzed and how the reliability and validity of data were ensured. To fulfill the aims of the study, three main tools were used; a test, an attitude scale and an observation card for students. Using these three tools can help in making the study transferable, conformable and dependable. To clarify more, for measuring the effectiveness of the QAR strategy on enhancing sixth graders' HOTS in reading , the test is designed. Concerning the attitude scale, it is used to investigate the attitude of sixth grade students toward reading . The observation card was used to observe whether sixth grade improved their HOTS in reading ability or not through using QAR strategy. After applying the two types of validity, it can be said that the three tools are highly consistent and valid to be used as a tool for the study. Besides, results indicated that they are reliable.



## **Chapter IV**

# **Results and Analysis of Data**

## **Chapter IV**

### **Results and Analysis of Data**

The purpose of this study was to examine the impact of using Q.A.R strategy to enhance 6<sup>th</sup> graders' higher order thinking skills in reading and their attitudes toward it. The researcher used three tools in order to collect data: a higher order thinking skills test, a reading attitudes scale, and an observation card. This chapter tackles the findings of the study regarding the research questions and hypotheses. The researcher used different statistic techniques using the Statistical Package for Social Sciences program (SPSS) to show the final collected data results. In addition, the effect size through ( $\eta^2$ ) was used to measure the effect size of the use Of the Q.A.R strategy on the students' higher order thinking skills in reading and attitudes towards reading in English.

#### **4-1 Study Findings**

##### **4-1-1 Question(1) Findings:**

**What are the higher order thinking skills in reading that sixth graders are required to have?**

To answer this question, and in order to decide the skills of the higher order thinking that students are required to have and master at the end of the experiment the researcher follow some steps :

- She made a content analysis of the English for Palestine book for the sixth grade .The analysis covering 12 reading lessons of 4 units.
- Reviewed previous studies (Seif,2012)
- Had a deep look on the analysis and distribution of the syllabus plan, teacher's guide as well as the enrichment material prepared for the 6<sup>th</sup> grade.
- She depended on different sources to construct the test and the observation card for HOTS through previous studies, English for Palestine Curriculum and experts' opinions.
- The researcher came to a conclusion that the higher order thinking skills that students are required to have were (analysis-synthesis-and evaluation ).
- The researcher construct the test include (28) item covering the three HOTS (see appendix9) . The observation card includes(25) HOTS skills that is

divided into three main scopes of HOTS ; analysis, synthesis, and evaluation. Under each main level, there is a list of sub HOTS skills. (See appendix 6).

#### **4-1- 2 Question(2) Findings:**

##### **What are the Main Characteristics of Q.A.R Strategy ?**

A detailed explanation of the main characteristics of Q.A.R strategy was discussed. It was included in chapter two in the theoretical framework.

#### **4-1-3 Question(3) Findings:**

-Are there statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group ( in pre-post test application) in higher order thinking skills test?

To answer this question, the researcher tested the following three null hypothesis:

**4-1-3-1-There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in analysis skill domain as measured by higher order thinking skills test?**

To investigate the first hypothesis, mean rank and sum of ranks of the experimental and the control groups' results were computed. Independent Sample Test was used to measure the significance of differences. The following table show the results of the differences between the experimental and the control groups in analysis skill domain as measured in higher order thinking skills test.

**Test Results of the Differences Between the Experimental and the Control Groups in Post Higher Order Thinking Skills( Analysis Domain)**

**(table 4-1)**

<b>Domain</b>	<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>Sum of Ranks</b>	<b>t' value</b>	<b>Eta <math>\eta^2</math></b>	<b>D</b>	<b>Effect Size</b>
<b>Analysis skill</b>	<b>Experimental</b>	38	7.95	2.301	**3.019	0.11	0.70	<b>Medium</b>
	<b>Control</b>	39	6.13	2.940				

**\*\*“T” table value at df (75 )and (0.05) sig. level equal 1.99**

**\*\*\*“T” table value atdf (75 )and (0.01) sig. level equal 2.64**

The results in table (4-1) indicated that the computed value was greater in **Analysis** skills and in the total score of the post test than the (t) table value in the post HOTS test. This means that there was statistically significant differences at ( $\alpha= 0.01$ ) level between the experimental group and the control one in favor of the experimental group. There was also a significant difference between the mean ranks of both groups in favor of the experimental group. The mean rank of the control group was(6.13) in relation to the total score of the test while the mean rank of the experimental group was(7.95). In addition, there was a **Medium** effect size of analysis skill (0.11).d=0.70 Thus, the first null hypothesis was rejected and the alternative hypothesis was accepted.

**4-1-3-2-There are no statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in synthesis skill domain as measured by higher order thinking skills test.**

**Test Results of Differences Between the Experimental and the Control Groups in Post Higher Order Thinking Skills ( Synthesis Domain)**

**(table 4-2)**

Domain	Group	N	Mean	Sum of Ranks	t" value "	Eta $\eta^2$	D	Effect Size
Synthesis skill	Experimental	38	7.42	2.445	**3.531	0.14	0.80	Large
	Control	39	5.36	2.670				

\*"T" table value at df (75 )and (0.05) sig. level equal 1.99

\*\*"T" table value at df (75 )and (0.01) sig. level equal 2.6 -\)

The results in table 4-2 indicated that the computed value was greater in **Synthesis** skills and in the total score of the post test than the (t) table value in the post higher order thinking skills in reading test. The table shows that there was a significant difference between the mean ranks of both groups in favor of the experimental group. The mean rank of the control group was (5.36) in relation to the total score of the test while the mean rank of the experimental group was (7.42). Furthermore, there was a **Large** effect size of **Synthesis** skill (0.14).d=0.8.Thus, the second null hypothesis was rejected and the alternative hypothesis was accepted.

**4-1-3-3-There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in evaluation skill domain as measured by higher order thinking skills test.**

**Test Results of Differences Between the Experimental and the Control Groups in  
Post Higher Order Thinking Skills ( Evaluation Domain)  
(table 4-3)**

Domain	Group	N	Mean	Sum of Ranks	t" value	Eta $\eta^2$	D	Effect Size
evaluation skill	Experimental	38	4.00	1.708	**4.271	0.20	1	Large
	Control	39	2.44	1.501				

\*“T” table value at df (75 )and (0.05) sig. level equal 1.99

\*\*\*“T” table value at df (75 )and (0.01) sig. level equal 2.64 -ʻ

The results in table 4-3 indicate that the computed value is greater in **evaluation** skills and in the total score of the post test than the (t) table value in the post higher order thinking skills in reading test. There was a significant difference between the mean ranks of both groups in favor of the experimental group. The mean rank of the control group is (2.44) in relation to the total score of the test while the mean rank of the experimental group is (4.00). There was a Large effect size of evaluation skill (0.20).d=1. So, the second null hypothesis was rejected and the alternative hypothesis was accepted.

**Results of Differences Between the Experimental and the Control Groups in the Post Test in All Higher Order Thinking Skills in Reading**

**(table 4-4)**

Scope	Group	N	Mean	Sum of Ranks	t" value	Eta $\eta$ 2	D	Effect Size
Analysis skill	Experimental	38	7.95	2.301	**3.019	0.11	0.70	Medium
	Control	39	6.13	2.940				
Synthesis skill	Experimental	38	7.42	2.445	**3.531	0.14	0.80	Large
	Control	39	5.36	2.670				
evaluation skill	Experimental	38	4.00	1.708	**4.271	0.20	1	Large
	Control	39	2.44	1.501				
Total	Experimental	38	19.16	6.416	**3.544	0.14	0.80	Large
	Control	39	13.92	6.543				

\*"T" table value at df (75 )and (0.05) sig. level equal 1.99

\*\*"T" table value at df (75 )and (0.01) sig. level equal 2.64

The results in table 4-4 indicated that the computed value was greater in all higher order skills and in the total score of the post test than the (t) table value in the post higher order thinking skills in reading test. There was statistically significant differences at ( $\alpha= 0.01$ ) level between the experimental group and the control one in favor of the experimental group. Furthermore there was a **Large** effect size of all higher order skills thinking skill with total effect size (0.14) and d=(0.80).

**4-1-3-4 The observation card result:**

**(Table 4-5)**

Observation	Scope one (Analysis)	Scope two (synthesis)	Scope three (Evaluation)	Total
pre observation	3.833	4.250	3.000	11.083
post observation	5.583	5.750	5.600	16.933

Table (4-5) shows that there was an improvement between the pre observation and the post observation. The researcher used (Wilcoxon test ,Diagnostic analysis and Wilcoxon Signed Ranks test). The following table shows that

**Wilcoxon Signed Ranks Test for the Results of Differences Between the First and the Second Observation for the Experimental Group for Every Scope and the Total Degree of the Scopes**

(table 4-6)

Scope	Ranks	N	Mean Rank	Sum of Ranks	Z	P.value	Sig. level
<b>Analysis</b>	Negative Ranks	0	0	0	*2.716	0.007	Sig at 0.01
	Positive Ranks	9	5	45			
	Ties	3	0	0			
<b>Synthesis</b>	Negative Ranks	0			*2.060	0.039	Sig at 0.05
	Positive Ranks	5	3	15			
	Ties	3					
<b>Evaluation</b>	Negative Ranks	0	0	0	*2.032	0.042	Sig at 0.05
	Positive Ranks	5	3	15			
	Ties	0					
<b>Total</b>	Negative Ranks	0	0	0	*3.869	0.000	Sig at 0.01
	Positive Ranks	19	10	190			
	Ties	6					

\*"Z" table value at (0.05) sig. level equal 1.96

\*\*"Z" table value at (0.01) sig. level equal 2.58

Table (4-6) shows that there was statistically significant differences between the first and the second observation in all scopes and the total score of the observation scope, towards the second observation. That means strategy of QAR was effective. To calculate the size effect the researcher used " $\eta^2$ " the following table shows that:



**Table (4-7)****"Z" Value, Eta Square "  $\eta^2$  ", for Each Scope and the Total Degree**

Scope	Z	Z <sup>2</sup>	Z <sup>2</sup> +2	$\eta^2$	Size effect
<b>Analysis</b>	2.716	7.377	11.377	0.648	Large
<b>Synthesis</b>	2.060	4.244	8.244	0.515	Large
<b>Evaluation</b>	2.032	4.129	8.129	0.508	Large
<b>Total</b>	3.869	14.969	18.969	0.789	Large

Table (4-7) shows that there was a large effect size for each scope and the total score of the observation, and that means that the strategy of QAR had large effect and improved the HOTS skills.

**4-1-4- Question(4) Findings:**

**Are there statistically significant differences at ( $\alpha \leq 0.05$ ) level between the mean scores of the experimental group on the reading attitudes scale before and after the experiment?**

To answer this question, the researcher tested the following null hypothesis:

-There are no statistically significant differences at ( $\alpha \leq 0.05$ ) level between the mean scores of the experimental group on the reading attitudes scale before and after the experiment. To examine this hypothesis, mean ranks and sums of rank of the experimental group's results on the post-reading attitudes scale were computed.

**the Results of Differences Between Pre and Post Attitudes Scale Within the Experimental Group**  
(table 4-8)

Domain	Group	N	Mean	Sum of Ranks	T value"
Attitudes toward enjoying reading English	<b>Pre</b>	36	3.52	0.550	*0.778
	<b>Post</b>	37	3.43	0.401	
Attitudes toward the importance and value of learning reading in English	<b>Pre</b>	36	3.55	0.606	*0.764
	<b>Post</b>	37	3.45	0.503	
Attitudes toward teacher and the method of teaching reading	<b>Pre</b>	36	3.46	0.407	*0.102
	<b>Post</b>	37	3.47	0.513	
<b>Total</b>	<b>Pre</b>	36	3.53	0.395	*0.851
	<b>Post</b>	37	3.45	0.341	

\*“T” table value at df (71)and (0.05) sig. level equal 1.99

\*\*\*“T” table value at df (71 )and (0.01) sig. level equal 2.65

The results in table( 4-8) indicate that the computed value is less in domains and in the total score of the post test than the (t) table value in the pre -post attitudes Scale. This means that there was no statistically significant differences ( $\alpha= 0.05$ ) levels in Pre and Post Attitudes Scale within the Experimental Group .Thus, the fourth null hypothesis was accepted .

#### 4-1-5 Question(5) Findings:

Are there statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group on the post application of the attitudes scale and that of the control group?

To answer this question, the researcher tested the following null hypothesis:

- There are no statistically significant differences at ( $\alpha\leq 0.05$ ) between the mean scores of the experimental group on the post application of the attitudes scale and that of the control group .To examine this hypothesis, mean ranks and sums of rank of the experimental and control group's results on the post- reading attitudes scale were computed

#### The Students' Performance of the Experimental Group and the Control Group in Post Application of the Attitude Scale

(table 4-9)

Domain	Group	N	Mean	Sum of Ranks	T value	Sig value
Attitudes toward enjoying reading English	experimental	37	3.43	0.401	*0.249	0.804
	Control	38	3.46	0.412		
Attitudes toward the importance and value of learning reading in English	experimental	37	3.45	0.503	*0.489	0.626
	Control	38	3.50	0.501		
Attitudes toward teacher and the method of teaching reading	experimental	37	3.47	0.513	*0.402	0.689
	Control	38	3.51	0.507		
<b>Total</b>	experimental	37	3.45	0.341	*0.850	0.398
	Control	38	3.49	0.372		

**\*“T” table value at df (73)and (0.05) sig. level equal 1.99**

**\* \* “T” table value at df (73 )and (0.01) sig. level equal 2.**

The results in table (4-9) indicated that the computed value was less in domains and in the total score of the post test than the (t) table value in the post attitudes Scale. This means that there was no statistically significant differences ( $\alpha= 0.05$ ) levels in Post Attitudes toward reading between the two groups. Thus, the fifth null hypothesis was accepted.

#### **4.2 Summary:**

This chapter dealt with data analysis and results. The results of each hypothesis were analyzed statistically using different statistical techniques. After analyzing the data of the higher order thinking skills in reading test, the results of the first three hypotheses showed differences of statistical significance between the experimental and the control groups in favor of the experimental group due to the teaching method. It is obvious that the results of the study indicate that students in the experimental group were more aware of the higher order thinking skills in reading analysis, synthesis and evaluation . Finally, after analyzing the data of the reading attitudes scale, the results of the Forth & fifth hypotheses pointed that there are no statistically significance differences between the attitudes of the experimental group before and after the experiment towards reading in English and between the experimental group's post application of the scale and that of the control group.

**Chapter V**  
**Findings, Conclusions,**  
**Pedagogical Implications and**  
**Recommendations**

## **Chapter V**

### **Findings, Conclusions, Pedagogical Implications and Recommendations**

This chapter tackles the findings of the study. The conclusions were drawn in light of the study findings. Some pedagogical implications are also included to enrich the teaching-learning process in general and teaching reading in particular. In addition, the researcher suggests some recommendations which can be advantageous for syllabus designers, supervisors, teachers and researchers as they can help improve the learning process in general and teaching reading in particular.

The study aimed to investigate the impact of using QAR strategy on the sixth female graders' higher order thinking in reading English and their attitudes toward it. To achieve this aim, the researcher adopted the experimental approach of the research in which two equivalent groups were employed. One of them was treated as an experimental group consisting of (38) students; and the other was treated as control group consisting of (39) students. Both groups were proved to be equivalent in terms of age, and gender . The researcher used a variety of tools: higher order thinking in reading test (pre and post test), and an attitude scale The general results of the study reflect the superiority of the experimental group ,which received higher order thinking in reading skills through QAR strategy compared with the control group, which received practicing reading lesson through the traditional way.

#### **5-1 Discussion of the Study Findings**

Based on the results of this study, the following findings were observed

##### **5-1-1 Interpretation of the First Question**

###### **What are the Higher Order Thinking Skills in Reading that Sixth Graders are Required to Have?**

The students are required to have and master at the end of the experiment (analysis-synthesis-and evaluation ) skills.

A detailed explanation of these HOTS was previously discussed. It was included in chapter four in the analysis of data .

## 5-2 Interpretation of the Second Question

### What are the Main Characteristics of Q.A.R Strategy ?

The QAR (Question-Answer Relationship) strategy teaches students to categorize questions asked in textbooks according to *where* and *how* they find the answer to these questions. By studying the types of questions asked, students learn to seek answers quickly and accurately. When answering textbook questions, students are usually expected to use explicit information, implicit information, and information from their own experiences.

The researcher Explain to students that textbook authors write different types of questions that require the reader to use different thinking strategies. An effective reader is able to approach different questions using different methods. Sometimes the answers to questions can be found in the text itself; at other times, answers are discovered by thinking about prior learning and personal experiences. This is strategy that can help students improve their ability to answer text book and reading comprehension questions accurately. When introducing this reading comprehension strategy, start by describing these four Question-Answer Relationships to student . In the Text Questions (Right There RT, Think and Search T&S) In Your Head Questions (Author and You A &Y) ,(On Your Own OY) .

Then the researcher selected a chapter from the textbook and ask students to review the questions at the end of their textbook chapter. Have students classify each question using the four QAR categories and consider where they will find the information to answer the question. Will the information be found in the text or in their heads?

The researcher using several different sections of the textbook which contain author questions, have students classify each question using the QAR (Question-Answer Relationships)format. Demonstrate for the class how to look for and think about answers to author questions. For example: A question that asks, “What does the author believe the problem is? Author and You” question

In order to teach the higher order thinking in reading lessons based on Q.A.R strategy, the researcher developed a teacher’s guide to help the English teacher in the teaching process, the teacher’s guide included the following:

- An introduction which included the aim of the guide and its importance in teaching the reading comprehension lessons.
- A brief summary about the Q.A.R strategy and its components.
- The aims of teaching the reading lessons through the Q.A.R strategy
- Time table for implementing the lessons.
- The lesson plan, which the researcher followed in teaching higher order thinking in reading lessons and it included:
  - a. The overall aim, and the behavioral goals for every lesson.
  - b. The procedures and the tasks.
  - c. The evaluation.
  - d. The time.
- Q.A.R strategy chart
- an example task for the Q.A.R strategy
- a training lesson for the Q.A.R strategy

**while implementing the lesson:**

- The teacher introduced an introduction for the Q.A.R strategy,
- The teacher's role in the Q.A.R strategy, was a facilitator and she followed up implementing the tasks which were required from students in the Q.A.R strategy,.
- After finishing tasks, the teacher discussed the students, and gave the opportunity to the speak.

**After implementing the lesson:**

- The teacher evaluated the students' learning to know to what extent were the aims achieved.
- The teacher determined the students' homework.

### **5-3 Interpretation of the Third Question:**

**5-3-1 "There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in analysis skill domain as measured in higher order thinking skills test".**

There were statistically significant differences in the level of “analysis skill” among students who learn higher order thinking in reading through using QAR strategy (experimental group) and between the control group, which are taught reading through the traditional approach in favor of the experimental group.

The results of analysis domain indicate that there were statistically significant differences at ( $\alpha = 0.01$ ) level between the experimental group and the control one in favor of the experimental group. This means that using Q.A.R strategy is effective to develop student's higher order thinking skills in reading (analysis domain).

Such findings can be attributed to the fact that using Q.A.R makes students read with a purpose and recognize possible answer locations by classification questions by type QAR, which was useful in helping pupils to classify the question type and determine appropriate reading strategy as well as locate information sources and monitor their comprehension. Comparing and controlling throughout text to make connections sense of reading. Q.A.R also helps Students think about what they know and what is in the text fit together. Furthermore the students think about what they have read before and make connections and think about other texts that relate to this topic and this come in agreement with Billmeyer (2006) study.

**5-3-2 "There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in synthesis skill domain as measured in higher order thinking skills test".**

There were statistically significant differences in the level of “synthesis skill” among students who learn higher order thinking in reading through using QAR strategy (experimental group) and the control group, which are taught reading through the traditional approach in favor of the experimental group.



This means that using Q.A.R strategy is effective to develop student's higher order thinking skills in reading (synthesis domain). Such large effect size can be due to the types of Q.A.R activities which, makes the students develop a variety of strategies to answer questions .Self-questioning helps engage readers and keeps them involved. Students actively ask their own questions and make predictions as they read. Being able to generate questions not only helps students deepen their understanding of the text but helps them learn how to learn. Additionally, students' understanding of text is shaped by the types of questions they have asked and been asked. when students are taught to use the strategy, their ability to answer questions correctly improves. Through QAR, students developed a language for talking about the strategies they use to answer questions and help them connect their experiences to content material. Students also use their own ideas to answer questions and think about what they already know and what the author says . QAR help them to ask effective questions as they read ,summarize text and predict what will happen next .

This come in agreement with Pardon(1992) & Wagner (2009).

**5-3-3" There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group and the mean scores of the control group in evaluation skill domain as measured in higher order thinking skills test".**

There were statistically significant differences in the level of “evaluation skill” among students who learn higher order thinking in reading through using QAR strategy (experimental group) and the control group, which are taught reading through the traditional approach in favor of the experimental group.

This reflect a large effect of using Q.A.R strategy in the development of student's higher order thinking skills in reading (evaluation domain). This can be due to that:

- QAR helps pupils to make a personal connection between what they have read in the text with what comes from the pupil's own knowledge .This meets with Billmyer (2006) study.

- QAR teaches students to value their questions and to see how their questions can increase their own understanding .This come in agreement with stuff(2009).

-QAR can also make students evaluate what it is read , make choices of based on reasonable argument and make judgment. This come in agreement with Pardon(1992) study.

In addition ,there was a **Large** effect size of all higher order skills thinking skill with total effect size . In other words, students in the experimental group improved their higher order thinking skills in reading significantly more than those in the control group .

**The researcher Attributes the difference in the level of progress between the three domains (analysis – synthesis – evaluation),** to the fact that QAR strategy had a large contribution in developing higher-order thinking skills and had greater impact whenever this skill further complicated in contradiction with the traditional way . Furthermore , the traditional way covers most of lower order thinking skills and gradually neglect the higher order ones. To clarify more, the result reveals that the QAR attributed in developing the students' evaluation skills more than the analysis skills .This indicates the effectiveness of this strategy in fostering higher-order thinking skills and reading comprehension .This come in agreement with studies as Baker(2012) ,Cummins( 2012), Furtado and Pastel (2012), Gladly (2011),Kinniburge (2010), Leah Harrias(2008) , Murtado (2011) , Pardon (1992) , Peng (2007), Stafford (2012), Starahler (2008) and Wiwin (2013).

**Comparison Between the Student Performance in the HOTS Test and their Performance in the Observation Card , the Result Show that :**

- There is a medium effect size for analysis domain in the HOTS test and a large effect size for the analysis domain in the observation card . This result is due to the fact that : the students feel relax during the reading class period and express their thoughts more freely than in the test, as well as, students sharing with a partner or with the teacher to ask and answer questions .
- There is a large effect size for synthesis domain in the HOTS test and a large effect size for the synthesis domain in the observation card . This result affirmed that the QAR affect the synthesis skills acquisition positively.

- There is a large effect size for the evaluation domain in the HOTS test and a large effect size for evaluation domain in the observation card . This result affirmed that the QAR affect the evaluation skills acquisition positively.

**The Researcher Attributed the Improvement in Higher Order Thinking Skills to:**

- Group work motivated students to work while keeping themselves engaged and interested.
- The Q.A.R strategy also created a relaxed, fun filled and anxiety-free atmosphere that facilitated and enhanced learning.
- Also, the Q.A.R strategy developed communicative language.
- QAR strategy helps students to ask effective questions as they read and respond to the text and makes this student more active , interested ,and less afraid in English class Using Q.A.R strategy created a non-threatening learning environment that encouraged interactions between students and the teacher. Furthermore, this positive impact was observed by the researcher through some statements and comments uttered by the learners. During informal talks and discussions with the experimental group, most of the students assured that they greatly benefited from the new strategy carried out through the teaching.

To sum up ,using Q.A.R strategy is effective in developing higher order thinking skills in reading English .It appears from the results that the students acquired higher order thinking skills through applying QAR strategy. Moreover, this was related to the role of the teacher who played the role of a leader and facilitator. This improvement in reading HOTS increased the students reading comprehension skills in the same time due to the use of QAR strategy. This result is in agreement with the results reported in some other related studies as :

(supandeni, 2013),(Becker, 2012),(Cummins, et al ,2012),(Furtado&Pastell, 2012), (Stafford, 2012),(Gladys,2011),(Murtado,2011),(Kinniburgh & Prew,2010) ,(Strahler, 2008),( Peng,et al,2007),(Hardiansyah , 2008)& (Yolanda N. Padrón1992).

**5-4 Interpretation of the Fourth and Fifth Questions:**

The researcher investigated the fourth and fifth questions ,which examines if :

**5-4-1 There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group on the pre application of the attitudes scale and of mean scores on the post application.**

**5- 4-2 There are no statistically significant differences at ( $\alpha \leq 0.05$ ) between the mean scores of the experimental group on the post application of the attitudes scale and that of the control group**

And the results shows that :

- There were no statistically significant differences between the attitude of the experimental group before and after the experiment.
- There were no statistically significant differences between the attitude of the experimental group and that of the control group in post application of the attitude scale

The researcher combined the interpretation of the fourth result hypothesis with the fifth result hypothesis together . The results show that there was no statistically significant differences between the experimental group and the control group in post application for the attitude scale. Also the same result appeared when analyzing the results of the differences between the pre and post application of the attitude scale of the experimental group .

These results can be due to :

- 1-Most of the students shy to express that they had difficulties in reading English or don't like reading .
- 2- The researcher was a stranger for them so they didn't care because the result of the scale had no effect on their marks.
- 3-This was the first time for the sample to apply such scales, so they didn't feel any responsibility regarding the result.
- 4-Students carelessness : the student didn't read the scopes of the attitude carefully, the student filled out the questionnaire in a hurry to save time ,and the student probably dealt with the scale as fun .
- 5-The students' fear to criticize her teacher or the method of teaching.

6-The student of experimental and control groups answered in the post application the same answers for the scale and this may be due to their first experience in pre application.

7- The attitudes need time to be changed (Pickens, 2005). The time allocated in this study "6weeks" was not enough to make a positive improvement in the students' attitudes .

All these reasons could affect the result of the students attitudes scale

The findings were in agreement with the findings of (Dawood,2008) study and disagree with(Gladys,2011) .

### **5-5 Conclusions**

-From the findings, it was evident that the use of the QAR strategy helped the Experiment Group improve their HOTS. QAR helped raise pupils' awareness of the need to look across sentences for answers which helped them to be comprehensive in answering questions. With QAR, pupils were also more able to answer the higher order questions which are text implicit and require simple or complex inference.

-The findings from this research on QAR confirm its value in helping both – the struggling learners and the advanced ones. Besides promoting higher level thinking, this strategy also encourages students to be active, strategic readers of texts.

- QAR strategy helps students learn the kind of thinking that different types of questions require, as well as where to go for answers in the text. It encourages students to be more efficient and strategic readers.

- The researcher had come to a conclusion that, QAR strategy need to be applied for a long time "more than 6 weeks, the time which was allocated for this research" in order to gain more positive results in enhancing HOTS in all levels and improve the students attitudes toward reading .

## **5-6 Pedagogical Implications:**

In light of the study results, the researcher suggests the following:

- QAR is a powerful strategy that will help students to understand the different types of questions.
- QAR teaches our students the four basic question-answer relationships and how to effectively and efficiently approach the text based on the different question/answer relationships.
- Understanding how the question-answer relationship works is an important component of comprehending text.
- Using the QAR strategy takes into consideration the individual differences among the students , so teachers should be aware of their students' needs and abilities in order to include appropriate activities that go in harmony with students' ability.
- Using QAR strategy creates a student-centered learning environment.
- Both teachers and students should be persuaded of the significance of thinking as it is a skill for all aspects of life. In addition, they should be persuaded of any changes in the learning process to be highly engaged in any new learning strategies.
- The vocabulary of QAR—In the Book, In My Head, Right There, Think & Search, Author & Me, and On My Own—gives teachers and students a language for talking about the largely invisible processes that constitute listening and reading comprehension across grades and subject areas. Teachers know the value of modeling and thinking aloud to make visible the thought processes involved in higher levels of thinking, but it can be frustrating trying to convey complex ideas without a shared vocabulary. Thus, QAR first and foremost provides teachers and students with a much-needed common language.
- QAR can help address the lack of a shared language among teachers and students for improving questioning practices,
- QAR can bring coherence to literacy instruction within and across grade levels and develop progression for comprehension instruction and promoting high levels of thinking QAR provides a means for organizing comprehension strategy instruction.
- QAR provides a focal point to begin sustained efforts for whole-school reform aimed at higher standards for literacy learning and teaching. all grades can benefit from learning to think in terms of information sources for answering and asking questions.

-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 Strategy in Teaching Reading Helps the Students to:**

- (1) develop their vocabulary,
- (2) activate their prior knowledge,
- (3) apply their higher level thinking
- (4) enhance their interest
- (5) gain access to reading comprehension and higher level thinking with text.
- (6) learn the kind of thinking that different types of questions require, as well as where to go for answers in the text.
- (7) encourage them to be more efficient and strategic readers.
- (8) ask effective questions as they read and respond to the text.
- (9) motivate them to practice further reading tasks.
- (10) encourage students to be more cooperative, active and interactive when doing an activity.

**Using the Strategy in Teaching Reading Helps the Teacher to:**

-Teachers use QAR strategy to guide and monitor student learning and to promote higher-level thinking in their students .

-QAR strategy encourages teachers to improve the types of thinking they are requiring of their students.

- QAR provides a means for teachers to gain or regain a focus on instruction in Promoting HOTS strategies in their classrooms.

-Teachers use questioning strategies to guide and monitor student learning and to promote higher-level thinking in their students. Teaching students the QAR strategy encourages teachers to improve the types of thinking skills required of their students.

### **5-7 Recommendations:**

The researcher believed that students could actually be taught to think differently as they read using QAR .In light of the results of the study, the following recommendations are suggested:

#### **5-7-1 Ministry of Education is Recommended:**

To enrich the Palestinian English curriculum with various higher order thinking skills activities in every reading lesson in all educational stages.

#### **5-7-2 Supervisors are Recommended:**

1. To supply teachers with instructional materials for raising their awareness of the QAR strategy and its importance and necessity to be employed in teaching the four skills of English language and other subjects.
- 2-To hold training courses for teachers related to the implementation of the QAR strategy in their classes.
3. To hold workshops that aspire to make teachers acquainted with the QAR strategy.

#### **5-7-3 English Language Teachers are Recommended:**

- 1-To use the QAR strategy with all English skills, listening, speaking, reading and writing.
- 2-To consider students' individual differences and learning styles in the QAR strategy activities.
3. To select efficient methods and techniques to motivate students' participation in the classroom.
4. To transfer their role from being instructors who dominate the class into educators whose role is to organize, help, guide, coordinate, lead, and support the students to communicate and acquire the necessary language.
5. To focus on different thinking skills.
6. To use the QAR strategy for developing students' critical thinking skills.
- 7- To attend the training courses that allow them to use recent methods in teaching like integrating technology.

#### **5-7-4 Recommendations For Further Studies:**

1. This study was limited to the reading skill. The QAR strategy should be applied with other English skills and sub-skills.
2. Conducting studies to investigate the effectiveness of using QAR strategy on



developing other students' thinking skills in English language.

3. Conducting studies to find out the effect of the QAR strategy on developing students' thinking in other subjects.

4-Conducting studies to examine the effect of the QAR strategy on students' in other grades

5- Conducting studies to examine the effect of the QAR strategy on student's reading comprehension.

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كامل, لمياء. (٢٠٠٣). فاعلية استخدام إستراتيجية الخرائط المعرفية في تنمية مستويات التفكير في تدريس القراءة في مادة اللغة الانجليزية لطلاب المرحلة الثانوية العامة. رسالة ماجستير غير منشورة. جامعة حلوان. كلية التربية: مصر

# Appendixes

(1)

## QUESTION ANSWER RELATIONSHIPS STRATEGY CHART

<b>In-the-Book Questions</b>	<b>In-My-Head Questions</b>
<p data-bbox="236 524 518 557"><b><i>Right There Questions<sup>1</sup></i></b></p> <p data-bbox="236 595 770 730">The answer is in the text. The words used to make up the question and words used to answer the question are found in the same sentence</p> 	<p data-bbox="810 524 1134 557"><b><i>Author and You Questions</i></b></p> <p data-bbox="810 562 1326 696">The answer is not in the story. You need to think about what you already know, what the author tells you and how it fits together</p> 
<p data-bbox="236 1151 451 1184"><b><i>Think and Search</i></b></p> <p data-bbox="236 1189 762 1402">The answer is in the selection but you need to put together different pieces of information to find it. The answer comes from different places in the selection. The answer can be within a paragraph, across paragraphs, or even across the chapter</p> 	<p data-bbox="810 1151 959 1184"><b><i>On My Own</i></b></p> <p data-bbox="810 1189 1353 1290">The answer is not in the text. To answer the question readers need to think about the text and what they already know fit together</p> 

**(2) teacher guide sample**

**My friends and why I love them**

English for Palestine (6)

PB page 48-49-50

Unit 16 lesson (1-2-3)

<p><b>Objectives:</b> At the end of this lesson , Ss are expected to be able to: practice and introduce giving advice and reasons</p>	<p><b>Key language:</b> brave , don't mind ,friendly ,hate helpful honest , kind , polite</p>	<p><b>Language structure :</b> Use conjunction and Use v+to+inf V+ing</p>	<p><b>Materials</b> pupils book, word card, poster recorder</p>
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Steps	Procedures	Time								
Warm-up	Greeting, songs, games	4 M								
HW	Checking home work	2M								
Revision	Review: Polite , promise , shout	2M								
Before reading	<p>1-Devided your class in to groups of( 5) or (6 )students then Show the chart to the students and briefly explain the four types of questions.                  2-review the four types of questions. Tell the students that all the questions you asked yourself while reading fits into one of the categories. By deciding what kind of question was asked, it is easier to determine the answer.                  3-Have the students help you decide where to place the question on the chart. Repeat this process for each question. As you code the question, discuss the answer to each question.                  4- ask yourself some questions aloud about the text. Write them on sticky notes.                  5-. Give the students the opportunity to ask questions. Write them on sticky notes.                  6-. After finishing the text read the first question.                  7. Have the students help you decide what type of question it is, and answer the question.                  8. Place the question on the chart under the correct category. Continue until all questions have been categorized.</p> <table border="1" data-bbox="331 1615 1227 1727"> <tr> <td><i>Right there</i> <i>(R.T)</i></td> <td><i>Think and search</i> <i>(T.S)</i></td> <td><i>Author and me</i> <i>(A.M)</i></td> <td><i>On my own</i> <i>(O.M)</i></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p><i>On my own : activating prior knowledge</i>  <i>Q:</i> from the title what do you already know about Friends ?                  What does friends mean?                  Who is your friend ?                  Why do you love your friend?  <i>Author and me : predicting Visualizing</i>  <i>Q:</i> from the title what might this lesson be about ?                  Encourage children to classify the question and try to answer it ?</p>	<i>Right there</i> <i>(R.T)</i>	<i>Think and search</i> <i>(T.S)</i>	<i>Author and me</i> <i>(A.M)</i>	<i>On my own</i> <i>(O.M)</i>					6 M
<i>Right there</i> <i>(R.T)</i>	<i>Think and search</i> <i>(T.S)</i>	<i>Author and me</i> <i>(A.M)</i>	<i>On my own</i> <i>(O.M)</i>							

<b>LANGUAGE PRESENTATION</b>	<p>1 Show Unit 16 poster. Ask <i>What can you see?</i> Elicit as much as possible in English (characters and items).</p> <p>2 Show the key language flashcards. Point to flashcard of friendly. Say <i>This is being friendly. What do you think you can do to be friendly?</i></p> <p>3 Display in different parts of the classroom.</p>	<b>5 M</b>
<b>ACTIVITY 1</b> During reading	<p><i>Author and me : predicting Visualizing</i></p> <p>What do you think will happen next ? How would you describe the mood of the lesson?</p> <p><i>Right there: scanning to locate information</i></p> <p>Who is the main character of the text ? What adjectives that can describe friends ?</p> <p><i>Think and search : : summarizing, classifying, making simple inferences</i></p> <p>What happened if you don't have a friend ? How can you make friends?</p> <p>1 Say <b>Look and listen</b>. Play recording. The children point to the correct flashcard when they hear each name.</p> <p>2 Say <b>Listen</b>. Play recording. Point to each item.</p> <p>3 • Say <b>Listen and repeat</b>. (Use signs) • Point to the words one by one.. Repeat.</p>	<b>5 M</b>
	<p>1 Distribute and say <i>I love my friend Mohammad because she helpful and friendly.</i> eleven children and get them to stand in line to make a sentence. Get class to confirm and read it aloud. Transfer to the board.</p> <p>2 Repeat with <i>He's teaching me to swim. Alena loves helping you.</i> Display the word cards on the right side of the board and flashcards on the left and invite children to match them</p>	
<b>ACTIVITY 2</b>	<p>1 Ask groups to talk about the pictures. Say <i>What can you see? Who can you see? What are they doing?</i></p> <p>2 Say <b>Read</b>. Ask children to read the sentences aloud.</p> <p>3 Say <b>Listen</b>. Play recording. On first listening, the children focus on understanding.</p> <p>4 Say <b>Listen and answer the questions</b>. Play recording again and ask the following questions:</p> <p><i>How is Amy generous?</i> <i>Who is kind and polite?</i> <i>When does Jordan shout?</i> <i>What does Bilal's sister Reem like doing?</i> <i>What does Reem want to be?</i></p>	<b>10 M</b>
<b>ACTIVITY 3</b> After reading	<p><i>Author and me: Making simple and complex inference</i></p> <p>What is the importance of having friends ?</p> <p><i>Think and search : summarizing, classifying, making simple inferences</i></p> <p>What did Reem think about Bilal ?</p> <p>1 Say <b>Listen and read aloud</b>. Play the recording again.</p>	<b>5 M</b>



	<p>Pause so that children can read and repeat the text.</p> <p>2 Get children to focus on the stress and intonation of the dialogues.</p> <p>On my own questions:</p> <p>Who is your friends?</p> <p>Have you ever helped your friend? tell us about the situation</p> <p>Can you live without friends ?</p> <p>What is the most important thing that you love in your friends?</p>	
<b>ACTIVITY 4</b>	<p>1 Say <b>Listen</b>. Play the recording for understanding.</p> <p>2 Say <b>Listen and answer questions</b>. Play the recording and pause so children can answer the questions.</p>	<b>5 M</b>
<b>REVIEW</b>	<p>1 Get children to identify the expressions: <i>I agree with you. I hope you don't mind but ... No, of course not</i></p>	<b>5 M</b>
Period 2	<p><b>LANGUAGE PRESENTATION 5 M</b></p> <p>As for Period 1.</p> <p>– <b>LANGUAGE DEVELOPMENT 5 M</b></p> <p>As for Period 1.</p>	<b>10 M</b>
<b>ACTIVITY 1</b>	<p>R.T</p> <p>Encourage children to classify the question and try to answer it ?</p> <p>1 Say <b>Listen and circle the words you hear</b>. Play the recording pausing when you hear a key word so that children can find it in the text and circle. They check they have circled all the key vocabulary words.</p> <p>2 Say <b>Match the words with the pictures</b>. Get children to check their answers with a partner.</p> <p>3 Elicit answers, write them on the board. Get children to check their own work and make corrections.</p>	<b>5 M</b>
<b>ACTIVITY 2</b>	<p>R.T</p> <p>Encourage children to classify the question and try to answer it in groups ?</p> <p>1 Get children to look at the pictures in Period 1. Say <b>Listen and repeat the passage</b>. Play recording from Period 1 Activity 2, pause after each narration or dialogue and get children to read and repeat.</p>	<b>5 M</b>
<b>ACTIVITY 3</b>	<p>R.T</p> <p>Encourage children to classify the question and try to answer it ?</p> <p>1 Get children to work in groups. They take it in turns to read narration or dialogue in Period 1 Activity 2.</p> <p>2 Say <b>Work in groups of four or five. Read the passage aloud</b>. Monitor groups. If necessary model what you want the children to do with a group at the front of the classroom before getting the children to work in their own groups.</p>	<b>5 M</b>
<b>ACTIVITY 4</b>	<p>.T.S</p> <p>Encourage children to classify the question and try to answer it ?</p> <p>1 Say <b>Read</b> and get children to read silently.</p> <p>2 Say <b>Read and circle the correct words</b>. Ask children to read and circle the correct words. Model what you want the children to do with an example. Write on the board:</p>	<b>10 M</b>

	<p><i>Alena loves Amy because she is generous/brave.</i></p> <p>Elicit: <i>generous</i></p> <p>3 Get children to check their answers with a partner.</p> <p>4 Write 1, 2, 3, 4, 5, 6 on the board. Elicit the answers inviting a child to come to the board and write the answer next to the number. Children check their own work and make corrections.</p>	
<b>REVIEW</b>	<p>1 Play <i>I spy</i>. Say <i>I spy something beginning with the sound /br/</i> (brave). Repeat with /pr/ (promise) and /fr/ (friendly)</p>	<b>5 M</b>
Period 3 <b>LANGUAGE PRESENTATION</b>	<p>R.T</p> <p>Encourage children to classify the question and try to answer it in groups ?</p> <p>1 Show the word cards and ask children to match the word and flashcards.</p> <p>2 Ask <i>What does 'generous' mean?</i> Accept any reasonable answer that means you share with others, ask for an example so you know the children have conceptualised the idea, eg. share time, possessions, food.</p> <p>3 Repeat with <i>helpful</i>. --</p> <p>4 Ask <i>What word starts with the sound /fr/?</i> Elicit <i>friendly</i>. Repeat with /br/ (brave, brown, bring)</p>	<b>8 M</b>
<b>LANGUAGE DEVELOPMENT</b>	<p>1 Clap number of syllables and children guess the words,</p>	<b>7 M</b>
<b>ACTIVITY 1</b>	<p>R.T</p> <p>Encourage children to classify the question and try to answer it in groups?</p> <p>1 Say <b>Listen</b>. Children listen to the sentences and put their thumbs up if they are correct and put their thumbs down if they are wrong.</p> <p>2 Model what you want the children to do with an example, play the first sentence in the recording, eg. <i>Amy always promises to give back books</i>. Elicit: thumbs up. Encourage the children to tell you why it is wrong and what is the correct answer.</p>	<b>5 M</b>
<b>ACTIVITY 2</b> <b>Read. Then tick the correct sentences</b>	<p>T.S</p> <p>Encourage children to classify the question and try to answer it ?</p> <p>1 Ask the children to refer to Period 1 Activity 2.</p> <p>2 Say <b>Read. Then tick the correct sentences</b>. Ask the children to read the sentences silently and tick the correct sentences. Give a model as an example, eg. <i>Mohammad hates shouting. (tick)</i></p> <p>3 Write 1, 2, 3, 4, 5, 6 on the board. Elicit answers by asking questions to encourage the children to think about meaning and not focus on words in isolation</p>	<b>5 M</b>
<b>ACTIVITY 3</b>	<p>T.S</p> <p>Encourage children to classify the question and try to answer it ?</p> <p>1 Say <b>Read and complete the sentences</b>. Get the children to read the incomplete sentences and answer them with the unit vocabulary.</p> <p>2 Get children to check their answers with a partner.</p>	<b>5 M</b>

	3 Elicit the answers and the rest of the class agrees or disagrees. Children correct their own work.	
<b>ACTIVITY 4</b>	T.S & R.T Encourage children to classify the question and try to answer it ? 1 Say <b>Read. Then write answers to the questions.</b> Get children to read the questions silently, looking at the pictures on page 48 2 Elicit answers, children put their hands up to answer. Rest of class agrees or disagrees. Children correct their own work.	<b>5 M</b>
<b>REVIEW</b>	1 Play <i>Shark Attack</i> . Draw _ _ _ _ _ (promise) and encourage children to call out the sounds of letters. Put an arrow between the first two lines to show they are two letters and one sound. 2 The child who guesses correctly can draw the lines and be the teacher.	<b>5 M</b>

(3 )Lesson example

a piece of wood

Once upon a time there was a piece of wood. It was not an expensive piece of wood. Far from it. Just a common block of firewood, one of those thick, solid logs that are put on the fire in winter to make cold rooms cozy and warm.

I do not know how this really happened, yet the fact remains that one day this piece of wood found itself in the shop of an old carpenter. His real name was Mister Antonio, but everyone called him Mister Cherry, for the tip of his nose was so round and red and shiny that it looked like a ripe cherry.



As soon as he saw the piece of wood, Mister Cherry was filled with joy. Rubbing his hands together happily, he mumbled to himself:

"This has come in the nick of time. I shall use it to make the leg of a table."

He grasped the hatchet quickly to peel off the bark and shape the wood. But as he was about to give it the first blow, he stood still with arm uplifted, for he had heard a wee, little voice say in a pleading tone: "Please be careful! Do not hit me so hard.

**Question 1:** Why was the carpenter called mister cherry ? **R.T**

**Question2:** Describe the piece of wood found in the carpenter shop ? **T.S**

**Question3:** How could a block of wood make a cold room warm? **A.M**

**Question4:** Do you think being a carpenter is an important job ? Why or Why not ?  
**M.O**

(4)  
training lesson



After reading the text below work with a partner to decide the question-answer relationship for each question. Explain why it fits that QAR category.

Samy has lived in Gaza his entire life. However, tomorrow Samy and his family would be moving 100 miles away to Amman. Samy hated the idea of having to move. He would be leaving behind his best friend, the local football team he had played on for the last two years. And to make matters worse, he was moving on his birthday!

Samy would be thirteen tomorrow. He was going to be a teenager! He wanted to spend the day with his friends, not watching his house being packed up and put in a van. He thought that moving was a horrible way to spend his birthday. What about a party? What about spending the day with his friends? What about what he wanted? That was just the problem. No one ever asked Sam what he wanted.

Question Type (RT, TS, AM, MO )

1. How long has Samy lived in Gaza?
2. What is the name of the town where Samy and his family are moving?
3. What might Samy do to make moving to a new town easier for him?
4. What are two reasons why Samy did not want to move?
5. In what ways can moving to a new house and to a new city be exciting
6. Why did Samy feel that his family was ignoring him?
7. Why was Samy not looking forward to the next day?

(5)



**The Islamic University of Gaza**

**Deanery of Graduate Studies**

**Faculty of Education**

**English Curriculum & Teaching Methods Department**

**An observation Card for the Students 'higher order thinking skills development in reading**

The researcher is conducting an MA thesis, entitled "

**"The Impact of Using Question Answer Relationships Strategy on Enhancing sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it** in which she is going to examine the impact of using Question Answer Relationships Strategy on Enhancing sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it. Part of the study requires conducting an observation card to investigate the students' development in acquiring the higher order thinking skills in reading through the(Q.A.Rs)\* (evaluation , synthesis, analysis )Hence, for the purpose of an MA thesis, I would like you to referee the attached observation card through reading the following checklist and then ticking (√ ) the appropriate box.

<b>Item</b>	<b>High</b>	<b>Average</b>	<b>Low</b>
The items are appropriate to investigate the target skills			
The items are clear			
The items are appropriate to help observing the target skills			

The researcher has the desire to benefit from your experience in the field of teaching English and she, kindly asks you to common on the analysis attached to add, to drop or modify.

**Any further comments**

.....

.....0

**your effort is highly appreciated**

**Name of the referee / -----The degree -----The place of work-----**

**The Researcher / Rania Deeb Elkafarna**

(6)

Observation card for higher order thinking skills in reading among 6<sup>th</sup> graders

N	<b>Higher order thinking skills in reading</b>	high	moderate	low
<b>A</b>	<b>Analysis</b>			
1	guessing the meaning of words through context			
2	Inferring the mood attitudes ,or tones of the author.			
3	Distinguishing between opinion and facts.			
4	Developing awareness about synonyms and antonyms.			
5	Identifying the similarities and differences between elements			
6	Understanding the relationship of each component to the whole			
7	Explaining the reasons for a conclusion			
8	Eliciting rules and principles			
9	Distinguishing the most important elements of a problem			
10	Gathering information of evidence to solve a problem			
11	Ordering items according to their importance			
12	Breaking down the text in to its component			
<b>B</b>	<b>synthesis</b>			
1	Re arranging the information related to the text			
2	Summarizing the text			
3	Re telling the text using his words			
4	Combining his own information with the information in the text			
5	Relating text to personal experience , opinion or evaluation			
6	recognizing main ideas			
7	making prediction about reading text			
8	generating questions about reading text			

<i>C</i>	<b><i>Evaluation</i></b>			
1	Making appropriate revisions on basis of feedback			
2	Evaluating what is read			
3	Catching fallacies and contradictions			
4	Making choices based on reasoned argument			
5	answering factual inferential, judgment or evaluation question			



(7)



الجامعة الإسلامية – غزة

عمادة الدراسات العليا

كلية التربية

قسم المناهج وطرق التدريس

الموضوع : تحكيم مقياس الاتجاه نحو القراءة باللغة الانجليزية

السيد ..... / حفظها الله

السلام عليكم ورحمة الله وبركاته

تقوم الباحثة بإعداد دراسة للحصول على درجة الماجستير في التربية، تخصص مناهج وطرق تدريس

بعنوان

### "The Impact of Using Question Answer Relationships Strategy on Enhancing sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it

ومن متطلبات إجراء هذه الدراسة : إعداد مقياس الاتجاه لطالبات الصف السادس نحو القراءة في مادة اللغة الانجليزية، بهدف التعرف على اتجاهات الطالبات وموقفهن من القراءة في اللغة الانجليزية لذا أرجو من سيادتكم الإطلاع على المقياس وإبداء رأيكم حول مدى:

١- وضوح تعليمات مقياس الاتجاهات

٢- مناسبة العبارات لمستوى الطالبات بالصف السادس

٣- مناسبة الصياغة اللغوية لعبارات المقياس

٤- ارتباط العبارات بالهدف الذي وضعت من أجله في المقياس.

٥- انتماء كل عبارة للمحور الخاص بها

١ - حذف بعض الفقرات وإضافة فقرات أخرى

بسم الله الرحمن الرحيم

مقياس اتجاهات طلاب الصف السادس الأساسي نحو قراءة اللغة الانجليزية

عزيزتي الطالبة، السلام عليكم ورحمة الله وبركاته

يهدف هذا المقياس إلى معرفة اتجاهك نحو القراءة باللغة الانجليزية، وقد وضع لأجل البحث العلمي فقط فالمرجو منك أن تجيبي عن فقراته بكل صدق وجدية حتى يتحقق الهدف منه√.

يحتوي هذا المقياس على مجموعة من العبارات وأمام كل عبارة خمسة خيارات

( أوافق بشدة – أوافق – غير متأكد – أعارض – أعارض بشدة )

ويعبر التدرج المقابل لكل عبارة عن درجة الموافقة عليها

- أوافق بشدة : إذا كانت العبارة تتفق معك دائما

- أوافق : إذا كانت العبارة تتفق معك غالبا

- غير متأكد : إذا كانت العبارة لا تنطبق عليك ولا تستطيعي أن تقرري

- أعارض : إذا كانت العبارة لا تتفق معك غالبا

- أعارض بشدة : إذا كانت العبارة لا تتفق معك دائما

المطلوب منك أن تقرري كل عبارة بدقة وتضعي علامة ( √ ) أمام العبارة تحت احد الخيارات التي تعبر عن رأيك

والمثال التالي يوضح كيفية الإجابة

العبارة	أوافق بشدة	أوافق	غير متأكد	أعارض	أعارض بشدة
أحب دروس القراءة في اللغة الانجليزية	√				

الرجاء إتباع التعليمات التالية :

- اقرأي العبارات بدقة وتمعن

- لا تتركي أي عبارة دون تحديد استجابتك عليها

- لا تضعي أكثر من علامة أمام العبارة الواحدة

الباحثة : رانية الكفارنة

الرقم	العبارة	أوافق بشدة	أوافق	غير متأكد	أعارض	أعارض بشدة
	<b>المحور الأول الاستمتاع بقراءة اللغة الانجليزية</b>					
١	اشعر أن دروس القراءة باللغة الانجليزية شيقة وممتعة					
٢	اشعر بالراحة أثناء دروس القراءة باللغة الانجليزية					
٣	اشعر أن الوقت أثناء دروس القراءة باللغة الانجليزية ممل و طويل					
٤	اشعر بالقلق عندما تبدأ دروس القراءة باللغة الانجليزية					
٥	اشعر بالسعادة عند مشاركتي في حصة القراءة باللغة الانجليزية					
٦	اشعر بالسعادة عندما تلغى حصة القراءة باللغة الانجليزية					
٧	أحب أن اقضي وقت فراغي في قراءة دروس اللغة الانجليزية					
٨	أفضل درس القراءة دون غيره من دروس اللغة الانجليزية					
٩	استمتع بانتباه في دروس القراءة باللغة الانجليزية					
١٠	اهتم بقراءة المزيد من اللغة الانجليزية خارج نطاق الكتاب المدرسي					
	<b>المحور الثاني الاتجاه نحو قيمة تعلم القراءة</b>					
١	اشعر أن دروس القراءة باللغة الانجليزية لا فائدة منها					
٢	أشجع الآخرين على الاهتمام بتعلم دروس القراءة باللغة الانجليزية					
٣	ادرس اللغة الانجليزية فقط من اجل اجتياز الامتحان					
٤	أرى أن دروس القراءة باللغة الانجليزية تنمي الحصيلة اللغوية لدى					
٥	أرى أن تعلم القراءة باللغة الانجليزية يساعدني في دراسة المواد الدراسية الأخرى					
٦	القراءة باللغة الإنجليزية تنمي تفكيري أكثر من أي شيء اخر					
٧	اعتقد انه بإمكاننا الاستغناء عن حصة القراءة في جدول الحصص					
٨	اعتقد أن قراءة اللغة الانجليزية تساعدني على الإبداع					
٩	اعتقد أن دروس القراءة باللغة الانجليزية تزيد دافعيي للتعلم					
١٠	اعتقد أن القراءة باللغة الانجليزية عامل رئيسي في تنمية ثقافتي العامة					
	<b>المحور الثالث نحو المعلم و طريقة التدريس</b>					
١	اشعر أن المعلم يعطي أمثلة واضحة لتوصيل المعلومة في دروس قراءة اللغة الانجليزية					
٢	اشعر بالملل عند رؤية معلم اللغة الانجليزية خاصة في حصص القراءة					
٣	أحب أن أكون معلم لغة انجليزية في المستقبل					
٤	أخاف من مناقشة المعلم أثناء دروس القراءة في اللغة الانجليزية					
٥	افرح عند غياب معلم اللغة الانجليزية					
٦	أرى أن استخدام الوسائل التعليمية يساعد في تحسين قدرتي على القراءة باللغة الانجليزية					
٧	أرى أن معلم اللغة الانجليزية يحترم أفكار التلاميذ التي تطرح في دروس القراءة باللغة الإنجليزية					
٨	تعجبني طريقة تدريس القراءة باللغة الانجليزية التي يستخدمها المدرس					
٩	يعطيني المعلم الفرصة الكافية للإجابة عن الأسئلة أثناء دروس القراءة في اللغة الانجليزية					
١٠	أسئلة المعلم في حصة القراءة باللغة الانجليزية تحفزني على التفكير					

(8)



**The Islamic University of Gaza**

**Deanery of Graduate Studies**

**Faculty of Education**

**English Curriculum & Teaching Methods Department**

**Higher Order Thinking Skills in Reading English test**

### **The test Refereeing Checklist**

Dear referee,

The researcher is conducting an MA thesis, entitled "**The Impact of Using Question Answer Relationships Strategy on Enhancing sixth Graders' Higher Order Thinking Skills in Reading and Their Attitudes Toward it**"

Part of the study requires conducting HOTS test ,which the researcher has designed according to the table of specifications and the content analysis. Hence, for the purpose of an MA thesis, I would like you to referee. the attached test through reading the following checklist and then ticking ( / ) the appropriate box.

	<b>Item</b>	<b>High</b>	<b>Average</b>	<b>Low</b>
1-	The test items reflect the objectives			
2-	The reading test items suit sixth graders' level			
3-	There is coherence between the test items and the table of specification.			
4-	The layout is acceptable			
5-	The rubrics are clear			
6-	The time assigned is suitable			

**Any further comments are highly appreciated.**

.....  
.....  
.....

**Name of the referee / .....**

**The degree / .....**

**The place of work / .....**

**The Researcher :**

**Rania Elkafarna**

(9)

## Higher order thinking skills test for 6<sup>th</sup> graders

Text (1)

Read the following passage and answer the questions

1 Children, today we are going to talk about our friends and why we love them

I love my friend Amy because she is generous. And I always promise to give her books back.

Alena is kind and polite to others. She is good at listening and giving good advice.

2 I love my friend Mohammad because he's helpful and friendly. He's teaching me to swim.

I love my friend Jordan because he's honest. He never tells lies. But when he gets angry he shouts. I hate shouting!

I love my big sister Reem. She enjoys writing stories about explorers.

Amy and her class are talking about why they love their friends. Amy is generous, she lends her books to Alena. And Alena is kind and polite.

Mohammad and his friends are talking about their best friends and why they love them. Bilal thinks his sister Reem is brave because she can't walk, but she hopes to be a spacewoman.

3 We were talking about our friends at school today. I said, 'I love Alena because she is helpful!'

Oh, that was kind of you! I agree with you—Alena loves helping you.

Bilal said, 'My sister is brave. She wants to be a spacewoman!'

Amy and her dad are talking about her day at school.

4 I hope you don't mind me telling my class about you.

No, of course not! I don't need to walk in space, I can float.

Reem is playing basketball with Bilal. She thinks he is kind.

Name: ..... Class: ..... Date: .....

Mark / 14

<b>Question1(2M)</b>
----------------------

**1-Correct the underlined word****A- Amy lend her book to Alena and Alena never gives her book back.**

-----

**B- Alena loves Amy because she is clever.**

-----

<b>Question2(2M)</b>
----------------------

**2-Classify according to the passage & Put (√) under the correct choice**

		friendly	Helpful	polite	kind	generous	Brave	Honest
1	Amy							
2	Alena							
3	Jordan							
4	Mohammed							

<b>Question3(4M)</b>
----------------------

**3- Choose the correct answer :****A- Jordan (love – hate ) his friends Mohammed.(0.5M)****B- Amy( agrees – disagrees) to lend Alena her book. .(0.5M)****C- Who do you think is polite ?-----****-Jordan      - Mohammed      -Amy      -Alena****D- What happened when Jordan gets angry ? He-----**

-shouts

-cries

-smiles

-laughs

**Question4(2M)**

**4- Re arrange the sentence**

**A- And – Alena – listening – is – advice – good – at-giving.**

-----

**B- Enjoys – Reem – writing – about – explorers – stories.**

-----

**Question5(4M)**

**Answer the following questions**

**1- Reem doesn't mind that Bilal telling the class about her,  
Why?**

-----

**2- In your opinion what is the most important thing your friends  
should have ?**

-----

**3- Select the adjective that your friend already have .**

**impolite –generous – liar – helpful-friendly**

-----

**4-In your words put a title to the passage .**

-----



## Text( 2)

Read the following passage and answer the questions



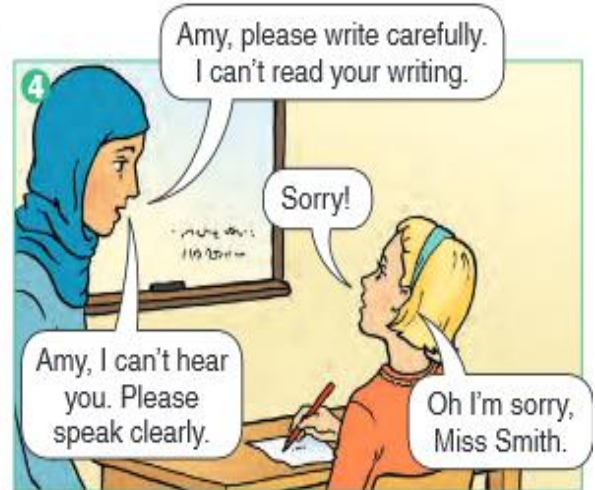
Ben and his family are waiting in a queue in a restaurant. A small boy and his mother do not notice the queue and push in rudely.



Two girls start to speak loudly. The librarian wants the girls to talk quietly because people come to the library to read and work quietly.



Ben and Omar are talking about where to play. Omar is not happy with Jordan because he interrupted them.



Amy is in a hurry. She is not doing her work carefully.

## Higher order thinking skills test for 6<sup>th</sup> graders

Text2 questions

Time / 40 minutes

Name: ..... Class: ..... Date: .....

Mark / 14

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### Question1(2M)

1- Correct the underlined word

A- People come to the library to read and work noisily .

-----

B- Ben and Omar are talking about where to read .

-----

### Question1(2M)

2 - Classify according to the passage Put (√)

		Agree	Disagree
1	Speak loudly in the library		
2	Push others rudely		
3	Write correctly		
4	Interrupt others while speaking		

### Question1(4M)

3- Choose the correct answer :

A- You must not (push in – take turns ) in a queue.

B- My ( neighbors- parents ) live next to my home.

**C- when the two girls start to speak loudly ,the librarian wants the girls to-----**

**-Speak quietly      -write carefully      -play noisily-  
push rudely**

**D-The teacher asks Amy to write carefully because-----**

**-The teacher can't read Amy's writing**

**-Amy was in a hurry**

**-The teacher can't hear Amy**

**-Amy said sorry**

<b>Question1(2M)</b>
----------------------

**4-Re arrange the sentences**

**A- Librarian – wants- girls- the – quietly – talk- to – the.**

-----

**B- Not –happy -Omar –is- with –Jordan.**

-----

<b>Question1(4M)</b>
----------------------

**Answer the following questions**

**1-Do you think interrupting others while talking is a good manner ?**

-----

**2- In your opinion what should you do in a queue ?**

-----

**3- Judge what the small boy and his mother did?**

-----

**4-In your words put a title to the text .**

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### Referees' List

This list includes the names and titles of the referees who refereed the Higher order thinking skills in reading test, the observation card , and the attitude scale

- 1- Test's referees
- 2- 2- observation card referee
- 3- attitude scale referees

N	Name	Field	Institution	1	2	3
1	Dr. Awad Keshta	Faculty of Education	IUG	√	√	√
2	Dr. Ibraheem El Astal	Faculty of Education	IUG		√	√
3	Jehan Ashour	DPS assistant	MA UNRWA	√	√	√
4	Taghreed Elsaftawi	BA teacher	UNRWA	√	√	√
5	Heba Abed Elrhman	school principal	UNRWA	√	√	√
6	Soha Badran BA	school principal	UNRWA	√	√	√
7	Rania Elsawalhi	BA assistant	UNRWA	√	√	√
8	Salwa Elnaami	BA teacher	UNRWA	√	√	√
9	Maha Barzaq	AM English researcher	R.N.C	√	√	√
10	Saher salha	BA teacher	UNRWA	√	√	√
11	Akram abo auda	school principal	UNRWA	√	√	√
12	Hanan Sahmode	BA assistant	UNRWA	√	√	√
13	Swsan Naseer	AM teacher	M.of education	√	√	√

