

# The Effect of Using the “SQP2RS via WTL” Strategy through Science Context to 10<sup>th</sup> Graders’ Reading Comprehension in English in Palestine

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## Abstract

The study aimed at investigating the effect of using the “SQP2RS via WTL” strategy through science context to 10<sup>th</sup> graders’ reading comprehension in English in Bethlehem district in Palestine. The study has been applied on a purposeful sample of 10<sup>th</sup> grade students at public schools in Bethlehem district in the academic year 2015/2016. The sample included (139) students (61 males and 78 females) at AL-Awda Basic School for Girls, Bethlehem Secondary Boys’ School. Students were assigned to experimental and control groups, the experimental group was taught by using the “SQP2RS via WTL” strategy, while the control group was taught by the traditional method. The researchers have prepared a reading comprehension achievement test. Content validity and reliability were established for the test. The experiment has lasted three months, a pre-test and post-test were performed using the reading comprehension achievement test to measure the effect of using the “SQP2RS via WTL” strategy. The means and standard deviation, (3-way ANCOVA) test, were used in the study. The findings of the study showed that there were statistically significant differences in the mean scores of 10<sup>th</sup> graders’ reading comprehension in the English language due to the teaching method in favor of the experimental group, the level of pre-achievement in favor of the high achievement group, the interaction between group and gender in favor of the female in the experimental group, the interaction between group and level of pre-achievement in favor of the high achievement in the experimental group, the interaction between gender and level of pre-achievement in favor of the male in the high achievement group and the interaction between group, gender and level of pre-achievement in favor of the high achievement male students in the experimental group. And there were no statistically significant differences in the mean scores of 10<sup>th</sup> graders’ reading comprehension in the English language due to gender. In the light of the results of the study, training programs should be offered to train teachers on using the “SQP2RS via WTL” strategy, students should be provided with opportunities to practice the strategy, and more studies should be conducted on different variables and different populations.

**Keywords:** Effect, SQP2RS, WTL, strategy, science context, 10<sup>th</sup> graders’, reading comprehension

## 1. Introduction

### 1.1 Background of the Study

A language is a systematic means of communication by the use of sounds or conventional symbols. It is the code we all use to express ourselves and communicate with others. Therefore, proficiency in English is often assumed to be the central aim of our studies. Furthermore, English has a unique cultural diversity and linguistic heterogeneity which enhance the importance to go deep in its structure and skills, and which make the subject of English teaching, and particularly that of English as a second or foreign language, the issue of many books, papers, and teaching methods.

Lindsay and Knight (2006) indicate that it is significant for the language teachers to know as much as possible about the language they teach in order to converge their knowledge to learners. Besides, learners need to use the language in interaction and make choices about the language they choose to communicate in. Therefore, teachers have to choose the most appropriate texts, activities, and strategies; give learners the opportunity they need to input language and use it; and modify their understanding of the language until they are able to recall and use it automatically.

In teaching English, dealing with skills that need special teaching methods and strategies are the main focus. To illustrate, in teaching reading, making a balance between using genuinely authentic material and material specially designed for students, is considered as an imperative concern (Harmer, 1998). Reading skills are related to writing skills, where writing is the opportunity to use language, to think about, clarify, explain and internalize information, experience, beliefs and learning process. Spolsky (1999) indicates that writing is a major means of learning, and it is a problem-solving activity in which students generate their own ideas and clarify ideas to themselves as they try to communicate them clearly to their readers. Consequently, it is crucial to adapt

the teaching strategies that can enormously be helpful to the academic and effective development to students' writing skills.

Echevarria, Vogt and Short (2004) introduce a model for language teaching called the Sheltered Instruction Observation Protocol "SIOP" which aims at improving the academic success of English language learners. The SQP2RS is one of the "SIOP model" strategies which involve the steps of surveying, questioning, predicting, reading, responding and summarizing. It assists students in comprehending the reading text and fostering their interaction with the text. The goal of this strategy is to increase students' engagement with the text when studying content material. With reading, all the information is available in the text. Using the SQP2RS enhances the readers' understanding of this information. Likewise, Writing to Learn (WTL) can enhance students' understanding of the text and develop their writing skills. Kuta (2008) reveals that students make their own records or note-taking to use as directed for content learning, and they can later use them to study for a test. Students are directed to take specific notes in both words and picture forms.

Comprehension is the most important aspect of the reading process, reading is strongly connected with the term comprehension since the ultimate goal of all instructional readings, beyond academic achievement, is to create readers who are able to comprehend different sorts of texts. This allows students to process information well, which is vitally important because as students develop through each grade, the demand to read at a deeper level and understand complex texts increases (Cooter & Flynt, 1996).

Stoller, Grabe and Komiyama (2013) compromise that small changes teachers make can enhance students' reading comprehension. For instance, the lesson may start out with pre-reading questions, during which the teacher taps into students' background knowledge and teach some key vocabulary. Sometimes the students are asked to preview the passage at this point and predict its content by looking at the title, the photo and caption accompanying the passage and section heading. At some point, students read the passage on their own in order to identify main ideas and details; distinguish between facts and opinions; draw inferences; determine author's intent, stance and bias; summarize; and extend textual information to new task such as class project, oral presentation and written assignment. For all of this to occur, students' motivation to read needs to be nurtured and explicit instruction that focus on developing reading strategies can greatly help learners become more skilled, strategic, motivated and confident readers.

### *1.2 Statement of the Problem*

Reflecting on the researchers' experiences, the teaching of English falls short in fulfilling its goals. Even after years of English learning, learners do not gain the confidence of using the language in writing and speaking. Despite the strenuous efforts that teachers devote to improve students' language skills, it's noticed that students finish high school with limited proficiency. Also, they lack the ability to comprehend the reading text and try to succeed in the reading lessons by reciting without deep comprehension. Students do not know how to comprehend, how to be more active and be like critics in comprehending a text, and how to process the information deeper. They are not aware of their learning and they cannot assess what they know, what they need to know, and how they bridge that gap during learning situations. In addition, students have a difficulty in English lessons for the mismatch between their need and teachers' preparation; some teachers do not provide students with strategies that they can use for long-life learning. All of this contributes to the low achievement of the Palestinian learners in English, and this can be observed from the results of the standard and unified examination. Thus, the researchers discussed the teaching of reading by combining two strategies, SQP2RS strategy via WTL strategy. Combining of these strategies can help students to be more interested and active in reading and helps them gain an understanding of the material that they are expected to read and understand in all disciplines.

### *1.3 Purpose of the Study*

The purpose of this study is to investigate the following:

- The effect of using the "SQP2RS via WTL" strategy through science context to 10<sup>th</sup> graders' reading comprehension in the English language in Bethlehem district in Palestine.
- The effect of the interaction between the "SQP2RS via WTL" strategy, gender and level of pre-achievement to 10<sup>th</sup> graders' reading comprehension in the English language in Bethlehem district in Palestine.

### *1.4 Question of the Study*

This study attempts to answer the following question:

- Is there an effect of using the "SQP2RS via WTL" strategy through science context to 10<sup>th</sup> graders' reading comprehension in the English language? And does this effect differ due to the method of teaching, gender, level of pre-achievement and the interaction between them?

### *1.5 Hypothesis of the Study*

The following null hypothesis is derived from the question of the study:

- There are no statistically significant differences at the significant level ( $\alpha \leq 0.05$ ) in the mean scores of 10<sup>th</sup> graders' reading comprehension in the English language due to the method of teaching, gender, level of pre-achievement and the interaction between them.

### *1.6 Significance of the Study*

The significance of this study stems from the fact that teachers are in need for effective teaching strategies to improve students' reading comprehension. Thus, this study provides necessary information on theoretical, practical and research fields. On the theoretical field, this study is expected to introduce a theoretical background about such strategy and reading comprehension for curriculum designers and researchers.

Whereas, on the practical field, the results of the study are expected to be meaningful for curriculum designers to develop materials for reading that help students in applying such strategies. Specifically, it may offer a great benefit for higher grades supervisors to encourage teachers to use such strategies in teaching reading. And, on the research field, this study may help to enlarge the understanding of improving the reading and writing skills and provide a reference for further studies, with further variables and stages.

### *1.7 Limitations of the Study*

The study is applied and limited to the following:

1. The population of the study consists of the 10<sup>th</sup> graders (females and males) enrolled at public schools in Bethlehem.
2. The study is carried out in the first semester of the academic year 2015-2016.
3. The study is limited by the concepts and definitions mentioned in it.

## **2. Review of Literature and Related Studies**

Comprehension of what one reads is the most important aspect of the reading process. As such it is one of the most heavily researched. Comprehension is also a complex process that relies on the interaction among the reader, the text, the teacher and the educational setting. Whether or not comprehension can be taught depends on who you are talking about, what kind of text is being read, for what purpose and under what conditions. There are many variables that most likely to affect a student's comprehension competence. To illustrate, providing significant time periods for actual text reading, teaching specific comprehension strategy, allowing time for students to talk about their responses to reading and providing opportunities for peer collaboration (Cooter & Flynt, 1996). According to Langan (2010), good reading comprehension is usually a process that involves ten key skills. The first five skills involve the ability to recognize and use: definitions, examples enumerations and their headings, the relationship between heading and subheading, emphasis words and other signal words, and main ideas in paragraphs and short selections. Skills six to eight involve the ability to outline, to summarize, and to understand graphs and tables. And the final two skills will help increase the ability to make inferences and think critically. Cele-Murica, Brinton and AnnSnow (2014) indicate that some of the key components of the reading comprehension include decoding skills, vocabulary knowledge, grammar knowledge, world knowledge, short term memory, and inferential knowledge. Furthermore, the ability to understand a text underlies all reading tasks; yet it is not a simple ability. Comprehension requires a reasonable knowledge of basic grammar, an ability to identify main ideas in the text, an awareness of discourse structure and strategic processing.

Balancing the many skills needed for comprehension also requires that the reader be strategic. The reader needs to recognize processing difficulties, address imbalances between text information and readers knowledge, and make decision for monitoring comprehension and shifting goals for reading. Being a strategic reader means being able to read flexibly in line with changing purposes and the ongoing monitoring of comprehension. Reading is also a comprehending process; the notion of comprehending is both obvious and subtle. It is obvious in that any person could say that understanding might be carried out by the reader. One outcome of reading being purposeful and comprehending process is that it is also a learning process. This aspect should be evident to any one in that the most common way for students to learn is through reading. Lastly, reading is fundamentally a linguistic process. It makes little sense to discuss or interpret a text without engaging with it linguistically (Grabe & Stoller, 2002).

Grellet (1981) illustrates also that reading comprehension should not be separated from the other skills. There are few cases in real life when we do not talk or write about what we have read or when we do not relate what we have read to something we might have heard. Mackay (1979) also indicates that reading may be defined as an act of information processing. This act of information processing may break down as a result of a galaxy of factors-an inadequate vocabulary, inability to handle grammatical structures, failure to recognize the logical connection between sentences, incorrect utilization of context and complete novelty of the material. In other words, successful reading involves a large number of factors: lexical, grammatical, sentence connections,

paragraph organization and many others. Ruddell (2008) adds that the teacher and students engage in an instructional dialogue about the text, constructing their understanding of the text as they apply several strategies: predicting, questioning, summarizing, and clarifying. In addition, Alharbi (2015) addressed the effects of the Reading, Thinking, and Activity Model (RTAM) on English language reading comprehension among 105 Saudi students studying English as a foreign language in the Preparatory Year Program at Al Imam Mohammed Ibn Saud Islamic University. The findings indicated that the RTAM positively affected reading comprehension when compared with the traditional language teaching methodology.

It is vital to provide students with effective ways to help them in acquiring the knowledge and skills needed to succeed in the classroom and beyond. Echevarria and Short (2012) mention that teachers constantly try to employ techniques that make the content in the second language comprehensible and accessible, and develop students' skills in the new language. The Sheltered Instruction Observation Protocol Model (SIOP Model) is a lesson planning and delivery system that incorporates best practices for teaching academic English, and provides teachers with a coherent approach for improving the achievement of their students (Short, 2013). This model brings together what to teach by providing an approach in how to teach. To illustrate, for English learners to succeed, they must master not only the English vocabulary and grammar, but also the way English is used in core content classes (Echevarria et al., 2004). Ruddel (2008) emphasizes that the most common academic goal of reading is text comprehension-the construction of meaning that in some way corresponds to the author's intended meaning. Hence, it is essential to have real instruction that guides students' progress through the text promotes learning, teaches them how to become better readers and writers, and provide adequate support for the application of new learning. Echevarria et al. (2004) emphasize also that the "SIOP model" concentrates on helping and scaffolding English language learners by providing many opportunities for them to use a variety of strategies that have been found to be especially effective. One of the most important methods for teaching strategies that enhances students' reading comprehension of text and incorporates in prompting thinking skills is the SQP2RS strategy suggested by Vogt (2002).

English language teachers have always wanted to modify their own approaches to reading instructions. They can modify their instructional practices in small ways with the ultimate aim of improving their students' reading abilities. Vogt (2002) introduces the strategy of the SQP2RS in order to help students in adapting a reading strategy that helps them in improving their reading comprehension. This strategy is based on the SQ3R strategy which is the oldest strategy around as well as the most frequently cited. Robinson (1970) develops the SQ3R study strategy to improve learning by incorporating higher-level study skills. SQ3R entails five steps: Survey, Question, Read, Recite, and Review. Khaghaninejad, Saadabadimotlagh and Kowsari (2015) conducted a study that particularly explored the effects of using SQ3R and TPS reading strategies on learners' reading performance. 60 Iranian undergraduate EFL learners attending a reading comprehension course were recruited. The results certified the efficacy of strategy-based approach of teaching reading passages, namely SQ3R and TPS, in promoting learners' reading comprehension in academic Iranian EFL context. Also, Hadi (2014) implemented a study aimed at investigating the impact of the strategy of (SQ3R) in the acquisition of the female students in fifth preparatory class/literary branch in Natural Geography. This study was conducted on a fifth preparatory class/literary branch of primary and secondary schools at Babylon in Iraq. The results of the study showed that there were statistically significant differences at ( $\alpha \leq 0.05$ ) between the average scores of the experimental and the control groups in the post achievement test in favor the experimental group.

In the present context, Vogt (2002) develops such a multi-step instructional framework for teaching reading which develops students' cognitive strategies and comprehension. Af Ida (2010) carried out a study to investigate the effect of using SQP2RS technique on the grade XI students' reading comprehension achievement. The population of this research was the grade XI students of SMAN 1 Srono in the 2009/2010 academic year in Indonesia. The primary data of this research were collected from the students' scores of reading comprehension test, while the supporting data were gained through interview and documentation. Based on the calculation, the mean score of the experimental group was higher than that of the mean score of the control group ( $72.19 > 66.98$ ). The result of the t-test analysis with significant level of 5% was higher than that of the t-table ( $2.54 > 2.00$ ). It indicated that there was a significant mean difference between the experimental group and the control group. The research results proved that there was a significant effect of using SQP2RS technique on the grade XI students' reading comprehension achievement at SMAN 1 Srono in the 2009/2010 academic year. Ruddel (2008); Echevarria et al. (2004) and Vogt (2002) suggest procedures by which the implementation of SQP2RS reading strategy is carried out successfully in a reading class is as follows:

1. **Survey:** the teacher leads students through whatever text is to be read by modeling their own thinking process. For example, the teacher should guide the students to survey the text by skimming it to get the key words and the main ideas. Moreover, surveying the text gives students an overview of what the reading selection is about and how it is organized and presented. Surveying also helps readers create a context for making predictions and generating questions to guide their ongoing reading. In addition, survey is a method for assessing and developing prior knowledge as well as providing students with an overall view of how the text is organized.

For example, when students read only the title of the text, they activate their schema related to the topic and predict what will be discussed. (Cooter & Flynt, 1996). Maimon, Peritz, and Yancey (2010) also indicate that it is essential at this step to make a quick review of the author, publication information, title, heading, visuals, and key sentences or paragraphs. Furthermore, graphics-photo graphs, diagrams, tables, charts and graphs-present a good bit information about texts, in survey step locate the particular graphic referred to in the text and study it at that point in reading, read the title or heading of the graphic, and read any notes, descriptions and the source information at the bottom of the graphics (Seyler, 2005).

2. **Question:** students with the teacher's guidance generate questions that can be expected to answer from the text. This will help students engage their knowledge and experience prior to reading, set purposes for reading and anchor their thinking in the text. It will also help them to create their own motivation for reading; students will create questions in their minds, predict the answers to those questions, search for the answers to those questions as they read, and paraphrase the answers to themselves. (Ruddel, 2008). Cooter and Flynt (1996) indicate that questioning techniques can assist students in fully comprehending text material. Through assisting students to generate question, teachers provide them with a method for determining what is and isn't important to know and think in relation to a given topic. Questioning is a process readers use before, during and after reading. The questioning process requires readers to ask questions to achieve a full understanding, construct meaning, enhance understanding, find answers, solve problems, find information and discover new information. (Fellag, 2005). Maimon, Peritz and Yancey (2010) add that analysis and interpretation require a critical understanding of the who, what, how and why of a text. It is essential to ask questions about the subject, write down any interesting answers and imagine what kinds of questions the teacher or classmates might ask about the text. Additionally, asking questions before reading in order to focus on reading and thinking about the content. Successful readers often do more than just preview the title, the heading and art accompanying a reading. They use the information they find through previewing to write questions about the reading. They write questions that they have about the topic, and then look for the answers as they read. Moreover, this stage is important for students because the questions and answers may appear on the examination (Fellag, 2005). Getting students to generate questions and answer them is one way for the teacher to get access to what is going on in their minds. Wrong answers are often particularly illuminating, because they can suggest where the misunderstanding arises. Yet in the reading class, the process by which the students arrived at an answer is critical. If he gives the right answer by accident, it is valueless. Or he may give an answer that is dismissed, but which he could defend if given the opportunity; his interpretation may be valid even though it is different from yours. That is why it is important to have a classroom climate that encourages people to say what they really think (Nuttall, 1996).

3. **Predict:** students build on the questions previously generated. It is vital to help students in making their own prediction, since this can draw their attention to the topic of the text and become more aware of how they form predictions by providing evidence from the text they have surveyed. Students then as a whole class determine four or five key concepts likely to be learned while reading. At this stage, they predict which key concepts would be chiefly studied. In fact, this process builds on the questions students generated during the 'Question' stage. Narrowing focus is absolutely essential in this stage (Ruddel, 2008). This is not a really a techniques but a skill which is basic to all the reading techniques and to the process of reading generally. It is the faculty of predicting or guessing what to come next, making use of the grammatical, logical, and cultural clues. This skill is at the core techniques such as anticipating or skimming (Grellet, 1981). Nuttall (1996) indicates that the reader's sense and experience help him to predict that the writer is likely to say this rather than that. A reader who shares many of the writer's presupposition will be able to think along with the writer and use his own experience to resolve difficulties. He may even find the text so predictable.

4. **Read:** in this step students may read independently, in pairs, or in small groups. The reading should be geared toward answering the questions and confirming or disconfirming the predictions. In addition to revisiting their predictions, students can use other strategies to increase their understanding of the text during the first reading, depending on the level of scaffolding students need (Ruddel, 2008). Maimon, Peritz and Yancey (2010) show that reading and recording initial impressions help in enhancing the comprehension of the reading text. To illustrate, it is valuable to read the text for its literal meaning. Identify the main topic and the main point the writer makes about the topic. If possible, reading the world in one setting. Note the difficult paragraphs to come back to, as well as interesting ideas.

5. **Respond:** students answer the questions, this can be done by directing students to the questions and predictions generated earlier and look to see which have been answered or met. For instance, have students work in pairs or in groups to review the questions that were generated earlier and see if they have found answers based on their reading of the text. For any questions that were not answered in the text, lead students in a discussion of why this may be the case; and help them understand how to draw on clues to generate more relevant questions in the future. Also, they can find the meaning of the new vocabulary from the text and clarify and enrich meanings for known words (Ruddel, 2008).

6. **Summarize:** in pairs or groups, students summarize the text's key concepts, using key vocabulary.

Students are provided with wait time during which they interact among themselves and come up with the main concepts, using the key vocabulary given on the board. Accordingly, students can work collaboratively to create summaries-perhaps map or annotations, or other types of representation-to elaborate their learning and serve as a record for information (Ruddel, 2008). Cooter and Flynt (1996) mention that summarizing is a powerful metacognitive skill that enables readers and writers to synthesize a text's meaning. It integrates the results of previous reading processes students have engaged in and helps them further understand major ideas and the relationships among them. A summary conveys the basic content of a text. When you summarize, your goal is to communicate the text's main points to your own words, not to say what you think of it. A summary of an essay or article is typically about one paragraph in length. Even when you are writing fuller summary of a longer work, use the fewest words possible. Although writing a summary requires simplifications, be careful to avoid misrepresenting the writer's points by oversimplifying them (Maimon, Peritz, & Yancey, 2010). Bean (1996) indicates that writing summaries is a superb way to develop reading, to practice decentering and to develop the skills of precision, clarity, and succinctness. In composing a summary, the writer must determine the hierarchical structure of the original article, retaining without eliminating its specific details. Summary writers must also suspend their own view on a subject to articulate fairly what is often unfamiliar or even unsettling view in the article being summarized. An excellent way to promote reading skills is to ask students to write summaries. Seyler (2005) demonstrates that preparing a good summary is not always as easy as it looks. A summary briefly restates, in your own words, the main points of a work in a way that does not misrepresent or distort the original. A good summary shows your grasp of the main ideas and your ability to express them clearly. Furthermore, the process of summarization requires the reader to determine what is important while reading and to paraphrase the information in the reader's own words. Alderson (2000) indicates that teacher modeling and student practice of the summarization process has proven effective for improving students' ability to summarize a text and to improve text comprehension. Students can be taught to identify main ideas, connect the main ideas, eliminate redundant and unnecessary information and remember what they read with the summarization strategy.

Additionally, Ruddel (2008) indicates that it is important to demonstrate each step to the students for the first time in order to use them later more effectively. In comprehending the text using the SQP2RS strategy, students not only know how to comprehend but also it enables them to be more active and critics in comprehending a text. Important also is to spend class time engaging students in complex, elaborative activities such as developing ways to organize information that will ultimately result in a variety of effective study practices; using maps to represent important ideas in the text, with provision for map sharing and reconstructing, provides a foundation for outlining, note taking and underlining skills. This can help students to link concept label with supporting information. In order for students to be able to read and think deeply about the subject matter of the text, the teacher can engage students in a reading lesson, writing notes could be a practical strategy during the procedure of the SQP2RS.

In short, the researchers have found that highly proficient readers are strategic readers. These six steps can be used no matter what kind of text is being read and can be taught. And, when these are explicitly taught and modeled, they transfer from classroom practice to real-world reading.

Writing to learn strategy (WTL) is developed to help students use writing as a way to learn. It promotes active learning by focusing on writing as a process for critical thinking and discovery-as a way to learn the content of the lesson, helps students find their own language for the ideas and concepts in the lesson, encourages students to write in a more lively and natural style, improves the quality of students' writing, give teachers a better understanding of how students are appropriating the material and forces students to keep up with the assigned reading.

Klein (1999) designates that writing is one of the most appealing of instructional activities. At the very least, frequent composition should help students to become better communicators. It may help them to become better acquainted with the forms of writing acquired in various academic disciplines. But most intriguingly, writing may help students to think critically and construct new knowledge. As Menary (2007, p. 622) states, "creating and manipulating written sentences are not merely outputs from neural processes but, just as crucially, they shape the cycle of processing that constitutes a mental act." Accordingly, writing can be used effectively as a tool for constructive learning and for supporting students in developing critical thinking and increasing their analysis, inference and evaluation skills.

Al-Ashakar (2014) investigated the influence of note-taking strategy on improving students' academic achievement in English and TEFL majors' perspectives at An-Najah National University in Nablus. To achieve the purposes of the study, the researcher developed a questionnaire. There were significant differences at the level ( $\alpha \leq 0.05$ ) in the students' perspectives due to the students' gender in the first and fourth domains in favor of males in the first domain, but in favor of females in the fourth domain. There were also statistically significant differences in the students' perspectives' due to the students' faculty in favor of TEFL Majors in the first domain, but in favor of English Majors in the rest of domains. However, there were no significant differences in the students' perspectives due to students' academic level.

Knipper and Duggan (2006) illustrate that writing to learn is an opportunity for students to recall, clarify and question what they know about a subject and what they still wonder about with regard to that subject matter. Students also discover what they know about their content focus, their language, themselves and their ability to communicate all of that to a variety of audiences. Baird, Robert and Leo (1998) clarify that writing to learn approach is based on the premises that the act of writing engages the students in the learning process. While improved writing skills can be a side benefit of these activities, learning a topic is the primary goal.

Besides, authors vary widely in the hypothetical models they suggest to explain the processes underlying learning through writing. Jordon (2014) conducted a study that described the use of “Writing to Learn” assignments in a course on the Theology of the Protestant and Catholic Reformations at the University of St. Thomas in the USA. These short, informal assignments promote active learning by focusing on writing as a process for critical thinking and as a way to learn the content of the course. They help students creatively engage with the texts, thoughtfully reflect on them, and critically assess their significance. The students in the course found the assignments helpful in learning the content of the course, and their attitude toward writing in this course significantly improved. Moreover, Atasoy (2013) conducted a study to explore the effect of Writing to Learn (WTL) strategy on undergraduates’ conceptual understanding of electrostatics. The sample of the study were 54 prospective elementary school mathematics teachers from two classes of physics II course instructed by the same teaching staff in a state university in eastern Turkey. The results of the study showed that there was a significant difference between the levels of improvement of conceptual understanding in groups favoring the experimental group. Additionally, through writing to learn activities, students will continue to learn to write as they write to learn, on the contrary to formal writing, they do not have to follow rules while they write nor be submitted for evaluation. As Wright (2012, p.1) discusses:

Short daily writing assignments can build student writing fluency and make writing a more motivating activity. For struggling writers, formal writing can feel much like a foreign language, with its own set of obscure grammatical rules and intimidating vocabulary. Just as people learn another language more quickly and gain confidence when they use it frequently, however, poor writers gradually develop into better writers when they are prompted to write daily and receive rapid feedback and encouragement about that writing.

Writing to learn and its repertoire of strategies are believed to stimulate students’ interest in learning, encourage writing and more importantly, help students to become better writers of English. When students write in each step of the SQP2RS strategy—take notes, answer questions, write summaries, they will deepen their understanding of how knowledge is constructed, and learn to see and think about the text in different vantage points. Writing similarly allows educators and researchers to identify weak links in conceptual understanding while enabling writers to disclose personal connections they have made to the subject matter, and allow students to explore a concept, facilitate learning and develop a deeper understanding of course content (Balgopal & Wallace, 2009). Furthermore, Fisher and Frey (2008) assert the importance of transferring more responsibility to students; Writing to Learn is a strategy that may reflect highly in accomplishing this goal. Writing is thinking, and it helps students to become better learners; when they write, their understanding will continually be monitored. Students may list some words, write a sentence or develop a paragraph. Relatively besieged with the codes and conventions of more formal writing, students are encouraged to direct their cognitive energy toward reflecting on their thinking. It is also illustrated in Fisher & Frey (2008, p. 97) that:

Writing to communicate—or what James Britton calls “transactional writing”—means writing to accomplish something, instruct, or persuade ... Writing to learn is different. We write to ourselves as well as talk with other to objectify our perceptions of reality; the primary function of the “expressive language” is not to communicate, but to order and represent experience to our own understanding. In this sense language provides us with a unique way of knowing and becomes a tool for discovering, for shaping meaning, and for reaching understanding.

Therefore, Writing to Learn creates comfort and confidence in the mind of the student. Through creating new writing habits, the student overcomes the fear of writing and represents his/her experience with the text to his/her understanding, and by doing this, the gap between the text and the student’s understanding will be reduced. The researchers prepared a well-organized material as a guide for the teachers in the form of activities that illustrate how to teach reading lessons prescribed in the book of the tenth grade. It is a multi-step instructional framework that follows the steps of surveying, questioning, predicting, reading, responding, and summarizing, and all these steps are integrated with the Writing to Learn (WTL) strategy which is developed to help students use writing as a way to learn and promote active learning.

Hence, the researchers see that the ultimate goal of reading is comprehension; constructing meaning in some way congruent with the author’s intended meaning. The importance of reading-text transaction requires that the teacher needs to help students in adapting reading strategies such as the “SQP2RS via WTL” strategy that shares a clear focus on guiding students comprehension of texts.

It is apparent that there is an important connection between reading and writing. Integrating writing with reading enhances comprehension because the two are reciprocal processes. This integration also engages

students, extends thinking, deepens understanding and energizes the meaning-making process. The area of focus for this research is improving reading comprehension through combining the reading strategy with the writing one.

### 3. Methods and Procedures

#### 3.1 Research Methods

The experimental method with a quasi-experimental design was used to carry out the study. The researchers conducted this method due to its relevance and suitability for the purposes of this study.

The researchers used the quasi-experimental design:

O 1 O 2 X O1 O2

O 1 O 2 --- O1 O2

O 1 - the reading comprehension achievement test (pre-test / post-test)

O 2 - the reflective thinking questionnaire (pre-test / post-test)

X - treatment (using “SQP2RS via WTL” strategy)

---- (using the traditional method)

#### 3.2 Population and Sample of the Study

The population of the study consisted of (3651) tenth grade students, distributed into (1909) female students and (1742) male students at the government schools which belong to the Directorate of Education in Bethlehem in the first semester of the academic year 2015/2016. The sample of the study consisted of the tenth grade (139) in two different schools (*AL-Awda Basic School for Girls* and *Bethlehem Secondary Boys’ School*). These two schools were selected in this study as a purposive sample due to the following reasons:

- The easiness of reaching the schools.
- The schools administration’s acceptance to apply the research.

The researchers assigned the sample of the study for the experimental and control group in both schools randomly.

#### Distribution of the sample of the study:

Group	High achievement		Low achievement		Total
	Male	Female	Male	Female	
<b>Experimental group (using “SQP2RS via WTL” strategy)</b>	13	23	16	16	68
<b>Controlled group (using the traditional method)</b>	14	23	18	16	71
<b>Total</b>	73		66		139

#### 3.3 Instruments of the Study

To achieve the objectives of the study, the researchers conducted an instrument which is a reading comprehension achievement test. This instrument was applied before the intervention of the study and after it for both, the experimental and the control groups.

The researchers constructed a reading comprehension achievement test. The test was given to a jury of English language specialists at school and university level. The paragraphs of the test were reviewed according to the following criteria:

- The paragraph’s depending on the levels of Bloom's Taxonomy.
- The paragraph’s link to the content of the material.
- The clarity of the wording of paragraph linguistically.
- Compatibility between the paragraph level and the level of the student's ability in the 10<sup>th</sup> grade.

A pilot study in the 10<sup>th</sup> grade at Farahat Secondary School was used to assure the understanding of words, instruction, and time appropriateness and to examine the reliability of the test. The pilot study was conducted on thirty students at Farahat Secondary School. The researchers used a test/re-test with two weeks period between them. Test reliability was (0.88) using Pearson correlation test. The researchers found the coefficient of difficulty and discrimination.

#### 3.4 Preparation of the Teacher's Guide Activities Using “SQP2RS via WTL” Strategy through science context

The researchers prepared a teacher’s guide in the form of activities that illustrate how to teach reading lessons prescribed in the book of the tenth grade, and the application of activities including the use of “SQP2RS via WTL” strategy. And the researchers followed the following steps:

- Had a deep look on the 10<sup>th</sup> grade’s English language curriculum which is applied in Palestine in the first semester 2015/2016.
- Had a deep and close reading on the specified related literature to the procedure that teachers can use in applying “SQP2RS via WTL” strategy.

- The material consisted of five units, each one consisted of three reading periods; one period is a reading text related specific topic and two periods for a literature text.
- The teacher's guide consisted of units' objectives, the reading texts, and the suitable methods to implement them according to the "SQP2RS via WTL" strategy as well as certain pictures, a worksheet, a poster, and activities which might simplify the teacher's job and learner's learning.
- The researchers showed the teacher's guide to a group of specified and experienced persons to give their opinions according to the purpose of preparing this material.
- The researchers held several meeting with practicing teachers to exchange opinions.

### 3.5 Statistical Treatment

When the data were gathered, they were processed through the SPSS in order to find reliability using Person correlation, and means and standard deviation for the reading comprehension achievement test (pre-test and post-test) for both, the experimental and control groups were also examined. Furthermore, the analysis of covariance (3-way ANCOVA) and adjusted means and standard errors were used to compare the means of the students' performance in the reading comprehension achievement test to answer the questions.

## 4. Results of the Study

The findings of the study are presented according to the research question.

Is there an effect of using the "SQP2RS via WTL" strategy through science context to 10<sup>th</sup> graders' reading comprehension in the English language? And does this effect differ due to the method of teaching, gender, level of per-achievement and the interaction between them?

To answer the question, mean scores and standard deviations were calculated for the learners' scores in the four groups-the control and the experimental ones-on the reading comprehension achievement test according to the method of teaching, gender and level of pre-achievement. Tables (1, 2, 3) show the mean scores and standard deviations:

**Table 1: Means and standard deviation for learners' scores in the reading comprehension achievement pre and post-tests according to group:**

Group		Pre-test	Post-test
Experimental group	Means	26.3088	38.9853
	Std. deviation	15.64366	15.04371
	N	68	68
Control group	Means	29.6620	32.8873
	Std. deviation	16.89120	17.54305
	N	71	71
Total	Means	28.0216	35.8705
	Std. deviation	16.32082	16.59354
	N	139	139

Data shown from the table (1) reveal that there are apparent differences between the learners' mean scores on the reading comprehension achievement test between the two groups (control and experimental).

**Table 2: Means and standard deviation for learners' scores in the reading comprehension achievement pre and post-tests according to gender:**

Group		Pre-test	Post-test
Male	Means	23.2295	30.9180
	Std. deviation	14.78895	17.34675
	N	61	61
Female	Means	31.7692	39.7436
	Std. deviation	16.56935	14.97915
	N	78	78
Total	Means	28.0216	35.8705
	Std. deviation	16.32082	16.59354
	N	139	139

Also the table (2) shows that there are apparent differences between the learners' mean scores on the reading comprehension achievement pre and post-tests according to gender.

**Table 3: Means and standard deviation for learners' scores in the reading comprehension achievement pre and post-tests according to level of pre-achievement:**

Group		Pre-test	Post-test
High achievement	Means	40.0685	48.4110
	Std. deviation	10.48720	8.57457
	N	73	73
Low achievement	Means	14.6970	22.0000
	Std. deviation	10.02147	11.45291
	N	66	66
Total	Means	28.0216	35.8705
	Std. deviation	16.32082	16.59354
	N	139	139

Table 3 shows that there are apparent differences between the learners' mean scores according to the level of pre-achievement.

To identify if there are statistically significant differences at ( $\alpha \leq 0.05$ ), (3-way ANCOVA) was used. The results are shown in table 4:

**Table 4: (3-way ANCOVA) results for the learners' scores in the reading comprehension achievement test according to the teaching method, gender, level of pre-achievement and the interaction between them:**

Source	Sum of squares	df	Mean squares	F	Sig.
Pre (covariate)	7521.509	1	7521.509	266.508	0.000*
Group	2484.266	1	2484.266	88.025	0.000*
Gender	46.779	1	46.779	1.658	0.200
Level of pre-achievement	708.466	1	708.466	25.103	0.000*
Group * Gender	173.766	1	173.766	6.157	0.014*
Group * Level of pre-achievement	143.704	1	143.704	5.092	0.026*
Gender * Level of pre-achievement	565.878	1	565.878	20.051	0.000*
Group * Gender * Level of pre-achievement	216.185	1	216.185	7.660	0.006*
Error	3668.916	130	28.222		
Total	216848.000	139			
Corrected total	37997.669	138			

\* Statistically significant at ( $\alpha \leq 0.05$ )

**Results related to group:**

Table (4) shows that F value was (88.025) for the differences between mean scores of learners' level in the two groups in the reading comprehension achievement test (experimental and control), and the significant level was (0.000), so there are significant differences between learner in the two groups (experimental and control). To identify the source of these differences, table (4.5) shows the adjusted mean scores for the post-test according to group:

**Table 5: Adjusted means and standard errors of the post-test scores by group:**

Group	Adjusted means	Std. errors
Experimental	40.369	0.671
Control	31.615	0.642

Data shown in table (4.5) reveal that the adjusted means for the experimental group was (40.369) and that is more than the control groups which was (31.615). Accordingly, the differences between the two groups are in favor of the experimental group.

**Results related to gender:**

From table (4), it is clear that there are no statistically differences at ( $\alpha \leq 0.05$ ) in the mean scores of 10<sup>th</sup> graders' reading comprehension in the English language due to gender, since the significant level is (0.200) are more than 0.05.

**Results related to the level of pre-achievement:**

One may clearly notice that table (4) shows that F value was (25.103) for the differences between mean scores of learners' level in the reading comprehension achievement test according to the level of pre-achievement, and the significant level was (0.000), so there are significant differences between learners, in due to level of pre-achievement. To identify the source of these differences, table (6) between the adjusted mean scores for the post-test according to level of pre-achievement:

**Table 6: Adjusted means and standard errors of the post-test scores by level of pre-achievement:**

Group	Adjusted means	Std. errors
High achievement	39.661	0.827
Low achievement	32.322	0.903

Data shown in table (6) reveal that the adjusted means for high achievement group was (39.661) and that is more than the low achievement group, which was (32.322). Accordingly, the differences between the two groups are in favor of the high achievement group.

**Results related to the interaction between group and gender:**

The results of the (3-way ANCOVA) in table (4) show that F value for the interaction between the group and gender was (6.157), and the significant level was (0.014), and this is less than the ( $\alpha \leq 0.05$ ), so there are significant differences for the interaction between groups and gender, as shown in table (4.7)

**Table 7: The differences for the interaction between group and gender:**

Group	Gender	Adjusted means	Std. errors
Experimental	Male	38.617	1.016
	Female	42.120	0.866
Control	Male	32.147	0.953
	Female	31.082	0.882

From the table above, it can be noticed that the differences for the interaction between group and gender are in favor of the female in the experimental group.

**Results related to the interaction between group and level of pre-achievement:**

The results of the (3-way ANCOVA) in table (4) show that F value for the interaction between the group and gender was (5.092), the significant level was (0.026), and this is less than the ( $\alpha \leq 0.05$ ), so there are significant differences for the interaction between group and level of pre-achievement as shown in table (8)

**Table 8: The differences for the interaction between group and level of pre-achievement**

Group	Level of pre-achievement	Adjusted means	Std. errors
Experimental	High achievement	43.001	1.026
	Low achievement	37.736	1.182
Control	High achievement	36.321	1.075
	Low achievement	26.908	1.054

From the table above, it can be noticed that the differences for the interaction between group and level of pre-achievement are in favor of the high achievement in the experimental group. Furthermore, the researchers noticed from the above table that there is an apparent development in the mean scores of the low achievement students in the experimental group (37.736), and if we compare them with the mean scores of the high achievement in the control group (36.321), we can notice that the mean scores are close to each other. This indicates that the use of the strategy reduced the gap between high and low achievement students.

**Results related to the interaction between gender and level of pre-achievement:**

The results of the (3-way ANCOVA) in table (4) show that F value for the interaction between the gender and level of pre-achievement was (20.051), and the significant level was (0.000) and this is less than the ( $\alpha \leq 0.05$ ), so there are significant differences for the interaction between gender and level of pre-achievement as shown in table (9):

**Table 9: The differences for the interaction between gender and level of pre-achievement:**

Gender	Level of pre-achievement	Adjusted means	Std. errors
Male	High achievement	41.120	1.083
	Low achievement	29.645	1.143
Female	High achievement	38.203	1.039
	Low achievement	35.000	1.091

From the table above, it can be noted that the differences for the interaction between group and level of pre-achievement, are in favor of the male, in the high achievement group.

**Results related to the interaction between group, gender and level of pre-achievement:**

The results of the (3-way ANCOVA) in table (4) show that F value for the interaction between the group, gender and level of pre-achievement was (7.660), the significant level was (0.006), and this is less than the ( $\alpha \leq 0.05$ ), so there are significant differences for the interaction between group, gender and level of pre-achievement as shown in table (10).

**Table 10: The differences for the interaction between group, gender and level of pre-achievement:**

Group	Gender	Level of pre-achievement	Adjusted means	Std. errors
Experimental	Male	High achievement	44.589	1.508
		Low achievement	32.645	1.530
	Female	High achievement	41.414	1.250
		Low achievement	42.827	1.490
Control	Male	High achievement	37.650	1.472
		Low achievement	26.644	1.396
	Female	High achievement	34.992	1.358
		Low achievement	27.173	1.398

From the table above, it can be noticed that the differences, for the interaction between group, gender and level of pre-achievement, are in favor of the high achievement male students in the experimental group. Besides, the researchers noticed from the above table that there is an apparent development in the mean scores of the low achievement male students in the experimental group (32.645) and if we compare them with the mean scores of the high achievement male students in the control group (37.650) we can notice that the mean scores are closed to each other. This shows that the use of the strategy reduced the gap between high and low achievement male students. Likewise, there is an apparent development in the mean scores of the low achievement female students in the experimental group (42.827), and if we compare them with the mean scores of the high achievement female students in the control group (34.992) we can notice that the scores of the low achievement female students in the experimental group are more than the scores of the high achievement female students in the control group. This illustrates that the use of the strategy reduced the gap between high and low achievement female students.

The study showed that there were statistically differences at the significant level ( $\alpha \leq 0.05$ ) in the mean scores of 10<sup>th</sup> graders' reading comprehension in the English language, due to the teaching method in favor of the experimental group.

## 5. Discussion

The researchers believe that the reason behind that is the use of the "SQP2RS via WTL" strategy which actively engaged students as they study, more so than when they simply read the text. Students got an overview of the text, thought about the title and pictures before they read, and generated questions to arouse their curiosity and, as a whole class, they came up with some key concepts they will learn while reading. Then they read to confirm their prediction and wrote their responses. As a final step, they communicated the text's main point to their own words. And by writing their notes on the work-sheets in each step, their comprehension widened. This study proved that following steps in reading and writing notes gave the students a superb way to develop reading, since it improved their ability to identify the main ideas, connect the main ideas, eliminate redundant and unnecessary information, use their own words in writing their notes, and remember what they read with the summarization step. Although the "SQP2RS via WTL" strategy is more time-consuming than reading, it provided a more systematic approach to read the texts. Many students believed, at the beginning of the implementation, that simply reading and rote memorizing are effective procedures that have served them well in previous attempts to comprehend reading texts. But after showing them how to use the strategy, allowing them to practice it, modelling question generations by presenting quality questions that guide appropriate encoding, providing corrective feedback for improving the quality of questions by identifying effective questions that facilitate the comprehension and retention of text content, and providing avenues for students to discuss perceptions on the use of the "SQP2RS via WTL" strategy discussion they were convinced that the use of this strategy is worthwhile in terms of time and effort. Using the strategy revealed an improvement in the students' comprehension. It can be also because of cooperative communication between students in combining details from different parts during the steps of the strategy. And it motivated learners to continue to struggle reading and comprehending the text.

According to the findings of the research questions, this reading strategy proved to have positive effects on the learners' comprehension and participation. It activated students' reading comprehension, nurtured communicative skills through using jigsaw strategy during the reading step, made learners focus, intensified collaboration, learning from each other, constructs meaning and prompted interpersonal interactions. The study's results suggested that the "SQP2RS via WTL" strategy facilitated learners' comprehension of the content of learning and broadened their insights. Moreover, when students made their own records or note taking to use as directed for content learning, they used them later to study for tests.

Teachers provided opportunities for students to adapt the strategy on their own in the advanced stages. This gave the learners an opportunity to play the major role in the reading lessons and the emphasis was on how to learn rather than what to learn, and this provided them with strategies that they can use in real life situations

with authentic materials and helped in creating readers who are able to comprehend different sorts of texts which is vitally important because, as students develop through each grade, the demand to read at a deeper level and understand complex text increases. This provided a significant shift toward a constructivism view in comprehension which supports the idea that the reader, not the text, is the meaning maker, and calls for readers to take control of their learning with the teacher's support and direction, as needed.

This study agrees with the results of Af Ida (2010) in that there is a significant mean difference between the experimental and the control group due to the use of the SQP2RS strategy. Likewise, these results agree with the study of Khaghaninejad et al. (2015) and Hadi (2014). These studies investigated the SQ3R which is a strategy that the SQP2RS relied on, all of them indicated that the SQ3R significantly improves students reading comprehension and students' achievement, and they provided students with structured reading techniques which could lead them to comprehend the texts better.

Concerning the effect of combining the SQP2RS strategy with the Writing to Learn strategy (WTL), the study results harmonize with Al-Ashakar (2014) in that the writing strategies help in improving the students' achievement in general. Also the results prove the importance of the writing strategies in all disciplines. It was identified in Jordon (2014), and Atasoy (2013) that the Writing to Learn strategies are significant in many areas of leaning and in many disciplines. This study proved that it is helpful for students to use this strategy in their reading lesson, since it enhances students' understanding of the text when they make their own records or note taking to use as directed for content learning, and they can later use them to study for the test.

The findings revealed that there were statistically significant differences in the mean scores of 10<sup>th</sup> graders' reading comprehension in the English language refer to the interaction between group, gender and level of pre-achievement in favor of the high achievement male students in the experimental group.

High achievement male students in the experimental group seem to have profited the most. This may be attributed to designing several activities that suited the high achievers and enabled them to work effectively. The researchers believe that these results could be due to the fact that this strategy opened new insight of thinking for the male high achievers. Moreover, the reason behind that was students followed the strategy and could read the text more than once, and they could search for the answers of the questions they had generalized; therefore, they felt more confident and relaxed. The researchers witnessed from that the higher achievers male students were interested in the strategy and their responses in the work-sheets proved this. Since males were more interested in the strategy use as they found in it what they lack, this can contribute in developing the way they respond to the reading comprehension test. They were also motivated to follow the steps of the strategy and write their notes. This can be evidence that relied on their good scores on the reading comprehension achievement test. Furthermore, the male high achievers in the experimental group spent a lot of time working with low achievers in their groups during the reading steps; they explained the material and advocated themselves to the learning of their group mates in all levels to guarantee high scores for their groups.

Besides, the researchers noticed that there is an apparent development in the mean scores of the low achievement male students in the experimental group, and if we compare them with the mean scores of the high achievement male students in the control group, we can notice that the mean scores are closed to each other. Likewise, there is an apparent development in the mean scores of the low achievement female students in the experimental group, and if we compare them with the mean scores of the high achievement female students in the control group, we can notice that the scores of the low achievement female students in the experimental group are more than the scores of the high achievement female students in the control group. This indicates that the use of the strategy reduced the gap between high and low achievement students.

None of the previous studies that the researchers surveyed are consistent with this finding.

Accordingly, the researchers believe that teachers must employ strategies and classroom techniques that bring about positive results towards reading comprehension. The goal of reading instruction should be directed towards enhancing the students' ability in reading and comprehension.

## 6. Conclusion and Recommendations

The results presented in this study indicated that use of the "SQP2RS via WTL" strategy brings positive results towards reading comprehension. The results showed that the experimental group out-performed the control group on the reading comprehension test. Generally speaking, the findings of the study indicated that there were statistically differences at the significant level ( $\alpha \leq 0.05$ ) in the mean scores of 10<sup>th</sup> graders' reading comprehension in English, due to the teaching method in favor of the experimental group. The mean score of the experimental group was high probably due to the effect of using the strategy since it arouses students' interest and motivation. The findings revealed that there were statistically significant differences in the mean scores of 10<sup>th</sup> graders' reading comprehension in the English language refer to the interaction between group, gender and level of pre-achievement in favor of the high achievement male students in the experimental group. This result contributed to the fact that high achievement male students in the experimental group explored the reading text beyond the limitations of their text books. They were encouraged to generate their own questions and made their

own predictions as a way to create their own motivation to read. Furthermore, they were interested in the strategy use as they found in it what they lack, this can contribute in developing the way they respond to the reading comprehension test. Hence, the researchers recommend that teachers must employ this strategy in their reading lessons.

In the light of the results and conclusion of the study, the researchers recommend that: training programs should be offered to train teachers on using the “SQP2RS via WTL” strategy, students should be provided with opportunities to practice the strategy, and more studies should be conducted on different variables and different populations were.

### Conflict of Interests

The authors have declared no conflict of interests of whatsoever.

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