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**Enhancing English Majors' Higher Order Thinking
Skills in EFL Reading and Motivation Using
a Reciprocal Teaching -Based Program**

By

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Abstract

The present study was conducted to investigate the impact of using a program based on reciprocal teaching method on enhancing English majors' higher order thinking skills (HOTS) in reading and their reading motivation. The study used the quasi-experimental research method (pre-post control-experimental design). Seventy students enrolled in the second year, English section at the Faculty of Education were randomly assigned to two intact groups: an experimental group (n=35) and a control group(n=35). The students in the experimental group were trained and instructed using a program based on reciprocal teaching whereas their counterparts in the control group did not receive such training as they received regular instruction. Instruments of the study included a language proficiency test, a test of higher-order thinking skills in reading and a scale of reading motivation. The findings revealed that the students in the experimental group significantly surpassed their counterparts in the control group in the post-performance on the test of higher -order thinking skills in reading and the scale of reading motivation.

Key words: Reciprocal Teaching, Higher-order Thinking Skills in Reading, Reading Motivation.

تعزيز مهارات التفكير العليا في القراءة والدافعيه

لدى طلاب شعبة اللغة الانجليزية باستخدام برنامج قائم على التدريس التبادلي

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الملخص

تم اجراء الدراسه الحاليه للتعرف على اثر استخدام برنامج قائم على التدريس التبادلي فى تعزيز مهارات التفكير العليا فى القراءه والدافعيه لدى مجموعه من طلاب شعبة اللغه الانجليزيه بكلية التربية. ولقد تم استخدام المنهج شبه التجريبي(التصميم القبلى-البعدى) فى الدراسه الحاليه . وقد اشتملت عينه الدراسه على ٧٠ طالب وطالبه من الفرقه الثانيه-شعبه اللغه الانجليزيه بكلية التربية بجامعة المنيا وقد تم تقسيمهم بشكل عشوائى الى مجموعتين متساويتين تامتين احدهما تجريبية والاخرى ضابطه. ولقد تم تدريب طلاب العينه التجريبية با استخدام برنامج قائم على التدريس التبادلي من تصميم الباحثه بينما استخدمت الطريقه التقليديه فى التدريس لطلاب العينه الضابطه. وقد اشتملت ادوات الدراسه على اختبار الكفاءه اللغويه، اختبار مهارات التفكير العليا فى القراءه و مقياس دافعيه القراءه. وقد اظهر تحليل النتائج وجود تحسن لدى اداء طلاب العينه التجريبية والذي يفوق بدوره اداء طلاب العينه الضابطه فى التطبيق البعدي لمهارات التفكير العليا فى القراءه ومقياس دافعيه القراءه. هذا وقد تم عرض مناقشه و تفسير النتائج، التضمينات، التوصيلت والمقترحات لاجات مستقبلية.

الكلمات المفتاحيه: التدريس التبادلي ، مهارات التفكير العليا فى القراءه ، دافعيه

القراءه

Introduction

English is a global language and has a significant impact on international communication among countries, companies or individuals. Accordingly, the need for the four language skills of listening, reading, speaking and writing for the sake of efficient communication is unquestionable. However, reading has been classified as the most vital of these skills inside and outside classroom context due to its importance as a source of information, a means of language learning as well as a source of pleasure. Reading becomes even more important for adults in higher education due to the demands of academic success in all fields of learning. As students advance in their education, they are expected to read and write across a wide variety of disciplines in every academic domain with increasing skill, flexibility, and insight. Accordingly, all students should be prepared and trained to comprehend and evaluate a wide variety of complicated texts—from printed books to electronic sources.

In this age of information, reading materials become increasingly demanding in later childhood and adolescence. Moreover, readers must be fluent in the processes of word decoding and recognition, continually expand their vocabulary and knowledge base, and learn to use elaborate cognitive and metacognitive strategies to make inferences and critically analyze texts. Thus, their need for developing much more advanced level of reading is highly emphasized. Since the goal of reading is to be able to understand printed text, reading comprehension instruction is fundamental and beneficial for all students

Ineffective readers often did not monitor the comprehension of their reading, and rarely apply any strategies to adjust to deficiencies in reading comprehension. Explicit teaching in reading comprehension skills is rare. However, it has been found that teachers' strategic use of task analysis and scaffolding with students are more effective than traditional methods (Gajria, Jitendra, Sood and Sacks, 2007). Similarly, research supports the direct instruction of comprehension strategies for

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students of all ages and skill levels using fiction or informational text. (Duke and Pearson, 2002; Oczkus, 2003 and Hattie, 2009). Moreover, direct, explicit, and systematic instruction supports the learning of complex material for students.

The interventions of reading comprehension among students are significantly effective since they are encouraged to monitor their understanding before, during and after reading. These strategies include skimming, scanning, making inferences, clarifying ideas, concepts or words, questioning thoughts, predicting outcomes or summarizing. To achieve understanding, efficient readers usually get information from multiple sources such as orthographic, lexical, structural or semantic knowledge in addition to their prior knowledge (schemata) (Ismail, Ahmadi and Gilakjani, 2012). In other words, they make use of the interactive model of reading. Through this model, readers make efficient processing of the text through a combination of bottom-up and top down strategies. The bottom-up strategies focus on the linguistic decoding of the elements of the text as symbols, words, phrases and sentences with the phoneme- grapheme relationships. The top-down strategies address the readers' schemata through the process of reconstructing meaning. Thus, reading instructions that address the interactive model for reading comprehension should be emphasized. Through the interactive model, prior knowledge, prediction and the accurate process of words of the text are equally important (A'yun and Yunus, 2017).

Reading comprehension has been classified into three levels; literal, inferential and creative or critical. The literal level of reading addresses the information directly stated in the text, whereas, the inferential meaning connects the ideas expressed throughout a specified text. The creative or critical level of reading addresses that kind of awareness of the meaning implied in the text (Rodli, 2015, (cited in Nimasari, 2016 :120). Thus, reading comprehension is the successful construction of meaning through the use of visual and nonvisual information with the help of readers' schemata. Readers' schema includes linguistic, content and formal prior knowledge. Oxford (1990) adds that metacognitive awareness is an important part of effective reading

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strategy. Accordingly, efficient readers know how to read to understand and know how to tackle the text before, during and after reading.

For reading comprehension or the construction of meaning, readers must be equipped with various strategies, methods and skills for reading. However, difficulties in achieving reading comprehension are very common among students of all age levels. Oxford (1997) and Laufer (2003) state that the use of reading comprehension strategies facilitates learners' process of learning and also has considerable effect on learners' motivation in reading. Accordingly, a teaching method for facilitating reading comprehension and increasing learners' reading motivation should be applied in the reading classroom. Laufer (2003) has called these teaching strategies “knowledge extending activities” to refer to the tactics that good readers use to comprehend any unfamiliar text. Among the variety of social learning approaches of reading, which utilize strategy teaching for enhancing comprehension, reciprocal teaching (RT) comes to the view.

Reciprocal teaching is one of the reading methods that tailor the interactive model. Reciprocal Teaching is highly distinguished in paralleling the new definition of reading as an interactive process, through which readers use their prior experience in interacting with the text (Carter, 2001). Through reflecting on their prior experience, readers learn new information, ideas, and arguments. Consequently, they construct meaning from the text to confirm or disconfirm what the author presents. Without this meaning construction, learning does not take place. Thus, reciprocal teaching is a model of constructivist learning.

Reciprocal teaching is informed by research in the United States that was led originally by Palincsar and Brown (Palincsar, 1982; Palincsar and Brown, 1984 and Palincsar, 1986). It is founded on the assumption that knowledge and comprehension occur as a result of creative socializing through discussions between teachers and students or students and students. It is considered one of the most powerful instructional practices concerning achievement outcomes due to its combination of strategy and direct instruction methods (Hattie, 2009).

Reciprocal teaching is a scaffolded or supported discussion method that good readers use to comprehend texts. The procedure is

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best characterized as a dialogue between teacher and students. The term “reciprocal” describes the nature of the interaction: each person acts in response to the other (s). It a multicomponent approach to teaching reading comprehension that integrates four cognitive strategies into one cohesive structure of text comprehension: predicting, clarifying, questioning and summarizing (Takala, 2006 and Oczkus, 2010). Through this approach which occurs in the form of dialogues between teachers and students, teachers can explicitly scaffold learning to help students become more cognitive about their reading, thinking and learning. In addition to that, the students are encouraged to develop self-regulatory skills, achieve overall improvement in motivation (Ismail et al., 2012), become more active, reflective and strategic readers (Baker & Emerson, 2014).

The use of reciprocal teaching also satisfies the criteria for promoting effective strategy use. Doolittle et al. (2006) pinpointed reciprocal teaching as an effective strategy as it is modeled effectively by instructors, learned through a context, practiced with a wide variety of tasks, promotes scaffolding during early strategy use and helps students to self-monitor and self-evaluate their own strategy use and results. Additionally, the reciprocal reading strategies were metaphorically referred to as the original Fab Four- The Beatles- by Oczkus (2010). This metaphor signifies the distinctive, separate and important role of each strategy as an individual research-based approach, similar to each member of the Beatles. However, keeping either the strategies or the members of the band together will make their effect more influential.

In this instructional activity, the students take the role of the teacher in small group reading sessions. Teachers usually start the sessions modelling, guiding discussions, providing formative feedback and then gradually release responsibility of predicting, clarifying, questioning and summarizing to the students' groups. Peer support and collaboration can be effective scaffolds for assuming teacher's role in leading a dialogue about what has been read (Oczkus,2010).

The National Institute of Child Health and Human Development (NICHD) recommended the effective practice of reciprocal teaching for improving reading comprehension with all types of texts (Oscus, 2010). Moreover, it has been confirmed that reciprocal teaching is very effective

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for improving the necessary reading comprehension skills not only for improved test scores but also for life in this Information Age. According to Hattie's research (2009), reciprocal teaching has been ranked ninth out of 138 of different practices for its power to yield results. Moreover, Hattie's research affirmed the growth of students' reading comprehension skills with .74 % in just one school year.

Reciprocal Teaching is known for its ease of use and flexibility with various teaching styles and formats (Carter, 2001 and Delaney-Beane, 2017). Moreover, it has been confirmed that reciprocal teaching helps educators implement the type of close, evidence-based reading required in any standards-based curriculum (Ocskus, 2010). Additionally, reciprocal teaching is regarded as a discussion technique that makes use of different listening and speaking standards, thus, each of the four strategies helps in meeting a variety of standards. Due to the wide use of both informational texts and more rigorous reading materials, students become in need of reciprocal teaching now more than ever to help them better comprehend and cope with such flood of information. Gonzalez (2014) points out that reciprocal teaching encourages students to consider their own thought process, monitor their comprehension and ask questions during reading to make the text more comprehensible and consequently let them take charge of their learning.

Since reciprocal teaching is considered a multiple-strategy approach that incorporates all its four strategies in each session to yield the best results, it can fulfill strong readers' needs who use more than one strategy at a time as they read. According to Ocskuz (2010), Gonzalez (2014) and Delaney-Beane, 2017), the four strategies can be implemented as follows:

- Predicting is a strategy that is related to reading between lines. A guessing activity of a topic, a picture or a word. It involves activating prior knowledge and previewing the text to anticipate what may happen next. the students predict the author's purpose or text organization. They usually use evidence from the text such as text features, titles, any visual clues together with their prior knowledge to make logical predictions before and during reading. Prediction helps to confirm or disconfirm self-generated hypotheses.

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- Questioning is a strategy that helps in developing deeper levels of thinking skills for learning and understanding through providing a context for exploring the text more deeply and assuring the construction of meaning. The students ask and answer questions for better understanding before reading during previewing the cover, the photos or during the reading stage itself. The questions usually revolve about unclear parts, puzzling information or connections to other concepts learned before. The questions also provide evidence to the teacher with the students' ability to construct meaning through constructing their own questions.
- Clarification is what students usually do to monitor their comprehension as they identify problems, misunderstanding, confusing points, words or phrases and answer the questions posed. Clarification gives the motivation to eliminate confusion through applying phonics and word analysis skills, analyzing the relation between parts of the text, using extra resources (e.g. dictionaries) or rereading for decoding new and unfamiliar words.
- Summarizing is a form of constructed meaning that is generated by the students. It requires the students' awareness of what is important to be paraphrased or summarized. The students try to determine themes, setting, characters, problems, events and resolution to summarize texts. They also integrate and evaluate information provided and find text evidence for their claims. They usually identify main points and details, compare and contrast the structure of the text and integrate these into concise statements that communicate the essential meaning of the text.

Reciprocal teaching and higher order thinking skills (HOTS)

Reading is a cognitive process which includes the reader, the text and the interaction between the reader and the text. The concept of reading has been changed from a receptive process to an interactive one (Allen, 2003). Reading comprehension is a constructive process that can be achieved when the author's intended message of the text has been received. Reading comprehension skills should be taught beside all cognitive skills starting from recalling information schemata, to

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comprehension, application, analysis, synthesis, and evaluation. It should be practiced through reading comprehension exercises.

Readers usually use higher- order thinking skills (HOTS) strategies to improve their abilities in thinking. Educators consider HOTS as that type of thinking that occurs when the student gets new knowledge and stores it in his memory, then this knowledge is organized, or evaluated to achieve a specific purpose. These skills include other sub-skills such as analysis, synthesis and evaluation, which are the highest levels in Bloom's cognitive taxonomy (Abosalem, 2016).

HOTS include critical, logical, reflective, metacognitive and creative thinking. They are activated when individuals face unfamiliar problems, uncertainties, questions, or dilemmas. Successful applications of these skills result in explanations, decisions, performances, and products that promote continued growth in these and other intellectual skills. Thus, good readers use higher order thinking strategies to think about, and control their reading before, during, and after reading a selection. In addition, students who do not use HOTS are usually low achievers in reading (Putcha, 2012 and Marier,2000).

Students usually apply a combination of cognitive and metacognitive strategies to get the gist of the text and develop independent reading skills. The cognitive strategies include predicting ideas, taking notes, summarizing, using prior knowledge, whereas the metacognitive strategies include planning, monitoring, evaluating predictions, focusing on important information, rereading some parts, etc. (Oxford, 1990). Without these abilities, readers would have a trouble in understanding what they read simply because the process of constructing meaning would not take place. Moreover, tapping on metacognitive strategies enables learners to become independent readers which is the target of the reading instruction. Thus, training students in thinking skills can enhance their reading comprehension, increase their motivation and improve their academic achievement and performance.

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It is assumed that instructional strategies that develop the HOTS have to be gradually designed from knowledge acquisition to reflection. Likewise, the teachers should start with modeling and shaping the knowledge and then gradually indulge with students in creation of thinking perspective. Accordingly, the use of appropriate teaching strategies through an appropriate learning environment that facilitate growth in the levels of thinking often leads to predicting, reasoning, evaluating, problem solving, decision making and analyzing situations (Shukla and Dungsungnoen, 2016).

Reciprocal Teaching has been characterized as an interactive dialogue that takes place between the teacher and students (or student leader and members of the group) that directs students to construct meaning. Reciprocal Teaching derives from the study reading theory that signifies reading for meaning and retention and requires effort, a full repertoire of comprehension strategies, and the flexibility to use these strategies as the situation requires (Carter, 2001). Reciprocal teaching helps students to develop their thinking and monitoring process which inform readers when understanding takes place and when it does not (Carter, 2001 and Gomaa, 2015). Thus, reciprocal teaching approach integrates both cognitive and metacognitive strategies for reading instruction and improves learners' reading comprehension, directs them towards independent reading, foster their motivation and develop their higher order thinking skills.

Reciprocal teaching and reading motivation

Proficient reading comprehension is crucial for success in every academic domain, and particularly in courses focus on reading and literature. The internal factor is one of the basic problems for the students' inadequacy with reading comprehension. Lack of motivation or reading interest is one of these internal factors. Carter (2001)) states that strategic reading helps readers, especially low-achieving learners, avoid reading motivation failure and promote their attention of the context. Ramita (2015) confirms the importance of reading interest for creating readers' motivation to get involved in any reading activity addressing specific needs such as acquiring information. Sadoski ,2001(cited in

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Ramita, 2015) clarifies the two aspects needed for the development of reading interest which are cognitive and affective. The cognitive aspect of the reading interest helps students to pay attention and learn from different resources as long as these sources satisfy their needs. The affective aspect is the students' attitude towards the type of reading they like most. Addressing these aspects helps students to develop reading as a habit and know what they can do exactly during any reading activity.

To master the skills and strategies of reading, students must commit time and effort to learn them; thus, students must be motivated to learn and then utilize them fully (Wigfield et al., 2016). Consequently, poor reading comprehension serves as barriers to fruitful careers and higher education. Reading motivation is strongly associated with reading outcomes, such as students' reading comprehension, use of effective strategies, and course grades. Researchers now have started to apply a set of instructional practices that include promoting students' self-efficacy, helping them to realize the importance and relevance of what they are learning, giving them control and autonomy over their learning, and allowing many social interactions around reading that can foster students' reading motivation and involvement.

Reciprocal teaching is prescribed for the students to develop reading motivation and high reading interest. Ismail et al. (2012) state that reciprocal teaching strategy gives learners motivation and the opportunity to use English in many of the language activities that are typical in communication. They also demonstrate that explicit reading strategy instruction provides an efficient model for teachers to motivate students' participation in their learning and teach them how to read effectively. Employing the four reading strategies helps students to administer the steps for reading comprehension, encourages students towards social interaction, motivates them to read more text and do more activities through the reading process, constructs meaning by themselves and thus learns independently (Ramita, 2015 and Ahmadi, 2016).

Context of the problem

The regular methods (one of which is, lecturing,) used in our educational institutions, do not direct learners as individuals towards tasks and materials and do not address their needs or challenge their abilities. Additionally, the teaching/ learning strategies (e.g. mechanical

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drills, underlying difficult words, etc.) used usually concentrate on memory and retention paying no attention to comprehension, dialogic skills, or deduction with a major focus on grade performance or testing rather than on developing students' knowledge, acquisition or their thinking skills through their learning process.

There is a growing need for students of all levels to learn sophisticated reading skills to fulfill the demands of both work and a world bursting with knowledge. It is true that every student can read, however, the majority have never been learned the good reading skills. Students who struggle with their comprehension usually tend to read texts emphasizing only words but not meaning, use fewer reading strategies, concentrate on the surface aspects of reading and have limited vocabulary. Decoding linguistic units and recognizing the relation between them are highly important. Though reading comprehension results from meaning construction not from the decoding of graphic symbols. This construction of meaning results from students' use of their background knowledge to be related to the new or unexpected information found in the text, thus, fostering higher levels of information processing.

To be more specific, the researcher submitted a questionnaire of reading habits to the sophomores at the English section at the Faculty of Education, Minia University to identify their reading habits in addition to the social conditions that surround their reading together with their feelings, needs and opinions about their reading. The responses showed the students' lack of effective reading skills as relating prior knowledge to existing knowledge, finding text evidence that supports HOTS questions, questioning unclear parts or summarizing important parts of the reading texts. In addition to that, the responses showed their lack of metacognitive skills as they did not show any skill in relation to planning, monitoring or evaluating their reading comprehension. The students also reported that teaching reading inside classrooms does not include any useful strategies to the learners; consequently, the classes have become quite boring and inflexible

One solution to this serious problem is the explicit instruction of reading comprehension which is rarely taught at the higher education

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level. In order to help students, comprehend the reading texts, it is important to teach reading strategies with their proper steps inside the classrooms (Palincsar and Brown, 1984; Carter, 2001; Putcha, 2012, Gomma; 2015 and Abosalem, 2016). Integrating both cognitive and metacognitive strategies into the reading classes will help students to find solutions when confronting reading difficulties. For language teachers, it is necessary to provide the learners with the tools that involve effective intervention and language learning strategies, and gradually remove these as the learners use them on their own (Ocskus, 2010; Ismail et al. 2012; Ramita, 2015; Ahmadi, 2016 and Wigfield et al. 2016). So, reciprocal teaching is highly recognized as through reciprocal teaching, the students will be involved in systematic training of these strategies to be able to construct their own knowledge, make their own rules, perform reading tasks without help, reach a higher level of thinking, increase motivation for reading and consequently become independent readers.

Review of Literature

Theoretical framework

This study is rooted in foreign language theories as follows:

1- social constructivism

It is an interactive, student- focused approach which considers students' needs and their current abilities before assigning them the task (Wangar and Gebauer, 2008). The concept suggests that interacting with the teacher and peers fosters the chance in filling their comprehension gaps and activating their cognitive processes (Cohen and Lotan, 2014). In this type of instructional setting, two main factors are considered essential to the learning outcomes: the construction of teaching and the social context that nurtures the process of interaction. This implies that learning is facilitated when students learn in a strategy-based as well as a social active context, with the guidance and support of a more knowledgeable person.

2- *Vygotsky's zone of proximal development (1978)*

According to Vygotsky, all learners have two levels of thinking development: an actual development level and a potential development level. Students can solve problems by themselves through the actual thinking development level whereas they need help from an expert or more efficient peers through the potential level of thinking development. The zone of proximal development (ZPD) is the distance between the actual and the potential development levels of thinking. Learners can either push themselves from their actual development level of thinking to the potential level or learn beyond their actual development level under expert scaffolding through social interactions till they internalize the strategies (Rosenshine and Meister, 1994; Ozchus, 2010 and Ahmadi and Gilakjani, 2012).

3- *The proleptic model of teaching.*

Paliscsar and Brown (1984) point out that the procedures of the proleptic model of teaching resemble the procedures found during apprenticeship instruction. Through this model, the responsibility transfers from the teacher, after direct instruction and modeling the process of solving problems, to the students for performing tasks independently.

4- *The expert scaffolding*

Paliscsar and Brown (1984) clarify the expert's role as a guide who limits tasks, determines critical features, shapes efforts, demonstrates solutions, motivates and supports students till they don't need it and perform tasks independently. Rosenshine and Meister (1994) add that through scaffolding, the gradual release of responsibility is adapted to the learner's current state of learning to facilitate and promote the independent performance of reading skills.

5- *The schemata theory proposed by Harmer (2011)*

It is also in line with the four strategies. There are three kinds of schemata: linguistic schemata (i.e., prior linguistic knowledge), content schemata (i.e., prior background knowledge), and formal schemata (i.e., knowledge of text structure). Thus, the theory says that a reader comes to read a text with something in his/her mind, a pre-existent knowledge of

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the world, which is called schema (Cahyono & Widiati, 2006: 41, (cited in A'yun and Yunus, 2017:135).

The researcher reviewed the related literature and studies that are concerned with reciprocal teaching. Palincsar and Brown (1984), the founders of reciprocal teaching, discovered that using reciprocal teaching strategies for only 15-20 days with a specific group of students increased their reading comprehension results from 30% to more than 70%. Likewise, Palincsar and Klenk (1991) confirmed that, with these strategies, students not only improved their comprehension skills immediately, but also maintained their developed comprehension skills when tested a year later. After reviewing 16 studies of reciprocal teaching, Rosenshine and Meister (1994) affirmed the utility of the technique for improving reading comprehension.

Studies focusing on the use of reciprocal teaching for developing reading comprehension

Research on reciprocal teaching and its impact on the reading skills with different levels of students from primary stages to collage has been great in L1 classrooms (Palincsar and David, 1990 and Ismail, 2016).

Incorporating the strategies of reciprocal teaching into intervention programs has been shown to yield positive and consistent results; i.e. with low-performing students in Urban settings (Carter, 1997), with struggling readers (Cooper et al, 2000), with students taught in large- group, teacher-led settings and in peer groups (Palincsar and Klenk, 1991 and Myers, 2005) and with English language learners struggling with comprehension due to vocabulary load (Fung, Wilkinson and Moore, 2003and Hashey and Connors, 2003). Likewise, it is considered a successful teaching strategy for developing reading comprehension in addition to retaining more of the material covered in the text (Reutzel, Smith and Fawson, 2005), vocabulary acquisition (Todd and Tracy, 2006) and increasing the level of students' achievement (Hattie, 2009).

Oczkus (2003), Ahmadi and Pourhossein (2012) and Al-Harby (2016) also confirm that this strategy has a significantly positive effect on the students' reading comprehension, their learning outcomes and

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attitudes. It is one of the most effective reading comprehension models that not only facilitates reading comprehension skill but also assists the improvements of other kinds of English language skills such as listening, speaking and writing. They add, reciprocal teaching strategy improves students' reading comprehension ability and motivates them to enhance co-operative working between themselves and with their instructor.

Russell (2011) pointed out that after just 20 days of reciprocal teaching instruction in an urban school with English language learners who spoke 14 different languages, the experimental group improved their oral language proficiency and their general reading process. Moreover, reciprocal teaching showed significant improvement in the students' writing proficiency (Russell and McCormack, 2014), with primary school students in comprehending expository texts (Pilten, 2016) and with suburban fourth grade class when reading non-fiction text (Delaney-Beane, 2017).

Studies focusing on the use of reciprocal teaching for developing higher order thinking skills (HOTS) in reading

Alfassi, 1998 (cited in A'yun and Yunus, 2017:23) confirms the effectiveness of reciprocal teaching method in fostering self-monitoring skills within a reading comprehension curriculum. Additionally, this study confirms the development of reading comprehension as an active and constructive process through which teachers and students mediate and negotiate the meaning of the reading material. Additionally, Soonthornmanee (2002), Isa (2007) and Gomaa (2015) emphasized the improvement of metacognitive awareness and comprehension monitoring skills of pupils with learning difficulties. Likewise, A'yun and Yunus (2017) affirmed the utility of reciprocal teaching method for teaching EFL reading especially in Indonesia due to engaging the students in using their schemata as well as their metacognitive abilities.

Mckinnon (2012), Armanita (2014) and Ramadan (2017) affirm the strong relationship between the HOTS and the reading comprehension. Thus, they recommend the design of higher order thinking tasks with the use of explicit scaffolding in the classroom through reciprocal teaching to support learning strategies and effective learning through cooperative learning contexts.

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Studies focusing on the use of reciprocal teaching for developing reading motivation

CORI (Concept Oriented Reading Instruction) was developed by Guthrie, Wigfield, and their colleagues (2004). The instructional practices in CORI focus on developing students' reading motivation and comprehension within a content domain—usually science or social studies. In CORI teachers provide reading strategy instruction and also focus on enhancing the different motivation variables including: students' self-efficacy, autonomy, value of reading, intrinsic motivation, and collaboration in reading. The results showed that how the integration of motivation and strategy instruction practices (including reciprocal teaching) influenced student motivation and comprehension in positive ways.

Schutte and Malouff (2007) asserted the point that motivation is an important factor which helps students to read more, and it has a significant relationship with reading and understanding texts. Likewise, other researchers confirmed the importance of motivation in target language learning and how motivation improves comprehension among language learners especially when integrated within an explicit reading instruction as reciprocal teaching (Ahmadi and Hairul, 2012 and Ramita, 2015).

Ahmadi (2016) investigated the effects of reciprocal teaching strategy on reading comprehension, reading motivation and reading meta-cognition in reading comprehension among Iranian EFL learners at universities. The findings of this study provide evidence on the fact that Iranian EFL university learners expressed positive attitudes and beliefs about using reciprocal teaching strategy instruction and this strategy met their teaching needs and goals.

The results of all the aforementioned studies affirmed the existence of the problem felt by the researcher; the weakness in the higher levels of thinking in reading and motivation. They also affirmed the idea that reciprocal teaching, being administered to any level of education with students with different reading abilities, has better results than conventional teaching on students' reading comprehension, different aspects of language proficiency, retention of teaching materials, attitudes towards learning and reading motivation.

Statement of the Problem

It is commonly observed that reading is usually been taught using conventional methods emphasizing tasks such as reading particular English passages, translating them into students' own language with the lack of prereading activities and monotonous post-reading activities. Though reading comprehension and the use of reading motivation can be enhanced by employing certain reading strategies, most teachers and learners, especially in higher education, do not focus on them. This happens because students usually focus on the scores they got out of activities than on getting data, on information at the surface level than on implied meaning in the text or that students find that the strategies given are too complex to use; and their instructors give easy reading assignments which do not require them to use any strategies or address their higher levels of thinking.

It has been emphasized that explicit scaffolding of strategies in reading fosters reading comprehension skills, the cognitive and metacognitive strategies, the higher-order level of thinking and reading motivation in foreign language learning settings to cope with the demands of the information age whether inside or outside classroom contexts. Thus, this study comes as an attempt to investigate the use of reciprocal teaching- based program for enhancing second-year English majors' higher-order thinking skills in reading as well as their reading motivation.

Questions of the study

The present study attempted to answer the following questions:

1. What is the effect of using a reciprocal teaching based-program on improving second-year English majors' higher-order thinking skills in reading?
2. What is the effect of using a reciprocal teaching based-program on improving second-year English majors' reading motivation?

Purposes of the study

The current study attempted to identify:

1. the effect of using a reciprocal teaching based-program on improving second-year English majors' higher-order thinking skills in reading.
2. the effect of using a reciprocal teaching based-program on improving second-year English majors' reading motivation.

Hypotheses of the study

The present study attempted to test the following hypotheses:

- 1- There would be a statistically significant difference between mean scores obtained by the students of the experimental and the control groups on the post- performance on the test of higher-order thinking skills in reading (favoring the experimental group).
- 2- There would be a statistically significant difference between mean values obtained by the students of the experimental and the control groups on the post- performance on the scale of reading motivation (favoring the experimental group).

Significance of the Study

A limited number of studies have addressed the role of Reciprocal Teaching (RT) strategies in higher-order thinking skills in EFL reading, in higher education level. Most of the studies targeted the primary or intermediate classes. This gap in the research justifies the need for more-strategy based research in the higher-education level.

More specifically, the present study is hopefully expected to:

- 1- enable students to build essential vocabulary skills in context, activate prior knowledge, relate what they know to the knowledge in the existing reading text, access information for use in new contexts easily, think critically and respond to text as they build their language and comprehension skills and take on responsibility for aspects of monitoring and evaluating their success in reading.
- 2- familiarize the English language teachers with the effective ways for teaching reading to encourage the students to take reverse roles as tutors, in addition to leading dialogue using the four different

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- comprehension strategies of prediction, clarification, questioning and summarizing for developing better reading habits that support HOTS.
- 3- enlighten curriculum designers to bridge the gap between reading comprehension instruction and its practice inside and outside classroom, cater for activities that increase the students' levels of reading comprehension and reading motivation using HOTS rather than LOTS for the sake of developing independent readers.

Delimitations of the study

The present study was delimited to the following elements:

- 1- The study was delimited to second year English majors, sophomores, enrolled at the Faculty of Education, Minia University.
- 2- The teaching strategies of reading used in this study were the four strategies of Reciprocal Teaching (RT) of reading comprehension: predicting, questioning, clarifying and summarizing. Additionally, visualization, reflection and evaluation strategies for reading were integrated in the design of this study.
- 3- The reading skills measured in this study were delimited to the higher-order thinking level only, analysis, synthesis and evaluation, in order to cope with the activities addressed through the used strategies of reading.

Definitions of Terms

Reciprocal Teaching

- Palincsar and Brown ,1984(cited by Hacker and Tenent ,2002: 669) defined reciprocal teaching as “an instructional procedure in which small groups of students learn to improve their reading comprehension through scaffold instruction of comprehension-monitoring strategies”.
- Operationally, the term is used in this study to refer to an instructional procedure in which the teacher and the learners are engaged through scaffolded instruction of comprehension strategies and then responsibility is gradually shifted towards students for independent use of these strategies.

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Higher order thinking skills (HOTS)

- Newman (1990: 44) defines higher order thinking skills as a means to “challenge students to interpret, analyze, or manipulate information”.
- Seif (2012: 19) reports that HOTS are intellectual processes where students have to activate their minds in order to understand the hidden meaning from the information introduced to them, realize the relations among ideas, draw principles and rules, analyze and classify, generate and combine new ideas, evaluate and judge.
- Operationally, it is defined in this study as a group of intellectual processes through which the students are challenged to extract important information, interpret relations among ideas, examine formed hypotheses, relate important ideas together and evaluate final conclusions.

Motivation

- Woolfolk (2001) defined motivation as the internal state that initiates, directs and sustains our behavior.

Reading motivation

- Wigfield and Eccles et al. (1998) defined reading motivation as the feelings that cause a reader to approach or avoid reading. They added that reading motivation is based on one's beliefs that he/she will succeed or fail as well as personal interest and activity.
- Guthrie and Wigfield (2000: 405) defined reading motivation as "the individual's personal goals, values and beliefs with regard to the topics, processes and outcomes of reading".
- The definition of Guthrie and Wigfield is adopted in the present study as it is the most suitable one for it.

Method

Design of the study

The present study utilized the quasi-experimental research design. The pre-post control group design (Hatch and Farhady, 1982) was used in designing and conducting the study. An experimental group and a control group were exposed to pre and post means of getting data. The experimental group only was instructed and trained using a program based on reciprocal teaching while the control group did not receive such training.

The main sample of the study consisted of seventy (70) English majors enrolled in the second year at the Faculty of Education, Minia University in the academic year 2016/2017. They were randomly divided into two equal intact groups; experimental and control and were of the same age level and the same grade level. Homogeneity was established between participants in both groups at the entry level before the intervention as follows:

Age

The two groups of the study were matched on age as the age level of all the participants ranged from 19 to 20.5 years old with nearly the same number in each group. Table (1) shows no significant difference between the students in both groups as the (t) value (0.554) is not significant at 0.05 level.

Table (1)
Means, Standard Deviation and t-value of participants' age

Group	Subjects	Means	SD	t-value	Df	Sig. (2-tailed)
Treatment	35	19.329	0.4363	0.554*	68	0.581
Non-treatment	35	19.271	0.4260			

*Not significant at 0.05 level and beyond.

Level of language proficiency

The two groups of the study were matched on their level of language proficiency. Table (2) shows no significant difference between the

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students in both groups as the (t) value (0.115) is not significant at 0.05 level.

Table (2)
Means, Standard Deviation and t-value of participants' language proficiency

Group	Subjects	Means	SD	t-value	df	Sig. (2-tailed)
Treatment	35	18.34	3.654	0.115*	68	0.909
Non-treatment	35	18.46	4.585			

* Not significant at 0.05 level

Linguistic background

All the participants studied English for 12 years (from primary (1) till the end of the secondary stage) at public schools in Minia Governorate. In addition to another year at their university level till they became sophomore.

Variables of the Study

1- The independent variable

The use of a reciprocal teaching- based program.

2- The dependent variables

Level of higher order thinking skills in reading.

Level of reading motivation.

Instruments of the study

1- A student's questionnaire of reading habits

- Purposes of the questionnaire

Identifying the goals, beliefs and values of second-year English majors towards reading. It also helps in figuring out the students' feelings, needs, opinions and the social conditions that surround their reading context.

- Construction of the questionnaire

- a- Reviewing the literature related to the domain of reading habits and motivation.

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- b- Stating the objectives of the questionnaire.
- c- Designing a preliminary questionnaire. It consists of three variables with 15 multiple-choice item and one open-ended item.
- d- Evaluating the preliminary form of the questionnaire by a jury of TEFL experts.

- *Validity of the questionnaire*

A jury of 5 TEFL experts approved the face validity of the questionnaire, its suitability and appropriacy for the study sample.

- *Administration of the questionnaire*

The questionnaire was administered to second year English majors to identify their goals, beliefs and values towards reading.

- *Results*

Analyzing the data obtained revealed that the majority of the students read only when there is a need either for study purposes or for doing assignments in class or at home. Concerning their expectations of reading, they reported that they read only for vocabulary. Most of the students reported that during classroom reading, their teachers used to ask questions or explain difficult words with no explicit instruction for reading. They also added that most of the reading activities they practiced focused on memory and retention questions with great focus on decoding graphic symbols with limited or rare use of activities that address their higher-order levels of thinking. Table (3) presents the percentage of the students' choice of the items of the questionnaire.

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Table (3)
Variable/response distribution of the Student's Questionnaire of Reading Habits

The Variable	Corresponding number of statements	Variable/ Response distribution	Total number (N)	
Background Knowledge	1	Good	30%	
		Average	70%	
	4	Sometimes	40%	
		Rarely	60%	
	5	Only if there is a need	50%	
		Whenever I have time	50%	
	7	In class	70%	
		At home	30%	
	9	The teacher	50%	
	The media	50%		
Personal Preferences	2	Average	60%	
		A little	40%	
	3	Arabic	60%	
		English	40%	
	6	For study purposes	50%	
		For doing assignments	50%	
	8	Its title	50%	
		Photos	50%	
Level of reading comprehension	13	Yes	50%	
		No	50%	
	10	New vocabulary	50%	
		Nothing specific	50%	
	11	Asks to read to answer questions.	40%	
		Explain difficult materials for home assignments	30%	
		Discusses the reading text with the whole class.	30%	
	12	Memory and retention questions.	50%	
		Decoding of graphic symbols	50%	
	15	Mobile device app	Frequency of its use	
		Always	sometimes	Never
		Preview the text before reading carefully.	30%	70%
		Engaged in the reading material.	40%	60%
		Decode text easily.	40%	60%
		Figure out challenging words.	70%	30%

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Relate your prior knowledge to the knowledge presented in the assigned reading text.	10%	50%	40%
Find text evidence that supports HOTS questions.	10%	40%	50%
Discriminate between main ideas and supporting details.	20%	40%	40%
Question unclear reading parts effectively.	20%	30%	40%
Monitor your reading comprehension.	20%	40%	40%
Summarize important points efficiently.	10%	30%	60%

2- A Test of Higher- Order Thinking Skills in Reading

- Purpose of the test

A test of higher-order thinking skills was designed by the researcher for second-year English majors to assess the level of their thinking skills in reading, ensure equality of the students in the experimental and control groups through piloting and measure the degree of improvement of the students in both groups on their level of higher-order thinking skills after finishing the course.

- Construction of the test

It consists of 50 items. It is constructed according to a table of specification on the basis of the four teaching strategies of reciprocal teaching depicted in the suggested program. Items are either of the multiple-choice type or the written production type. One point is given for each test item. The maximum score of the test is 50.

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- *Instructions of the test*

They are written in English. They are brief and easy to understand. They include information about the purpose of the test, the way of recording the answers and the time allowed to complete the test

- *Piloting the test*

Piloting the test was done with a group of thirty-five (35) male and female English majors enrolled in the second year at the Faculty of Education, Minia University in the academic year 2016/2017. Those participants were excluded later on from the intervention. Time taken by each student was recorded, divided by the whole number of students who took the test which was found to be 130 minutes. Thus, the testing time was 130 minutes.

- *Validity of the test*

- 1- The face validity of the test was determined by submitting it to a jury of 5 TEFL experts to judge its validity according to the following criteria: linguistic stating of items, how far the items measure the objectives of the program and their suitability to the subjects. The suggestions and recommendations of the jury members were taken into consideration and the test was revised to reach its final form.
- 2- Pearson correlation formula was used to determine the internal consistency of the test. The test was administered to the same piloting sample (35 second- year English majors). The internal consistency of each item was calculated. The correlation between the individual items of the test and the total test was determined as shown in table (4). The values of the correlation coefficient ranged from (0.36 to 0.47) and are considered acceptable.

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Table (4)

Internal Consistency of the test of higher-order thinking skills in reading
Correlation between the individual items and the total test

Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency
A1	.362*	D3	.376*	E2e	.386*
A2	.462**	D4	.421*	E2f	.393*
B1	.409*	D5	.364*	F1	.350*
B2	.370*	D6	.398*	F2	.427*
B3	.427*	D7	.374*	F3	.370*
C1	.445**	D8	.389*	F4	.387*
C2	.380*	D9	.356*	F5	.470**
C3	.401*	D10	.407*	F6	.439**
C4	.422*	D11	.462**	F7	.421*
C5	.435**	E1a	.421*	F8	.380*
C6	.393*	E1b	.446**	F9	.354*
C7	.397*	E1c	.474**	F10	.352*
C8	.421*	E1d	.427*	F11	.429*
C9	.387*	E2a	.421*	F12	.360*
C10	.366*	E2b	.444**	F13	.366*
D1	.384*	E2c	.378*	F14	.398*
D2	.410*	E2d	.381*	-	-

Note. **, Correlation is significant at the 0.01 level (2-tailed)

Note. *, Correlation is significant at the 0.05 level (2-tailed).

- Reliability of the test

Establishing the reliability of the test was done during piloting. The same piloting sample (35 second year English majors) took the test. The reliability coefficient of the test was determined using: (a) split-half method as Guttman Split-Half Coefficient of the test is (0.829), (b) Alpha Cronbach (α) coefficient which was (0.894). Cohen et al. (2007:506) point out that the split half coefficient and the alpha coefficient are considered reliable if they range from 0.70 to 0.90. Thus, both of the reliability coefficients of the test are considered within the acceptable range. This is shown in tables (5) and (6).

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Table (5)

The Split-half Reliability coefficient of the test of higher-order thinking skills in reading

The test of higher-order thinking skills in reading	Means	Variance	Standard Deviation	No. of items	Guttman Split-Half Coefficient
Part 1	14.74	28.079	5.299	25a	0.829*
Part 2	14.66	28.938	5.379	25b	
Both Parts	29.40	97.365	9.867	50	

*Reliability coefficient is significant at the 0.05 level (2-tailed).

Table (6)

The Cronbach Alpha's Reliability coefficient of the test of higher-order thinking skills in reading

The test of higher-order thinking skills in reading	Means	Variance	Standard Deviation	No. of items	Alpha
	29.40	97.365	9.867	50	0.894*

Note. *. Alpha is significant at the 0.05 level (2-tailed).

3- The Scale of reading motivation

- Purpose of the scale

A scale of reading motivation was designed by the researcher for second year English majors to measure their reading motivation, ensure equality of the students in the experimental and control groups through piloting and assess the degree of improvement in both groups on reading motivation after finishing the course.

- Construction of the scale

It is constructed on the basis of Likert five-point scale. The reading motivation component is represented in the scale through a group of four dimensions under which a group of statements were developed for measuring students' reading motivation with the total number of 36 statements. Each statement has five response categories rating as follows: strongly agree, agree, don't know, disagree and strongly disagree. Responses are given scores (weights) according to the scale points as follows: strongly agree (5), agree (4), don't know (3), disagree (2) and strongly disagree (1). There are no correct or wrong answers. Maximum score on the scale of reading motivation is 180. This is shown in table (7).

Table (7)

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The Dimensions of the scale of Reading Motivation		
No.	Scale dimensions	No. of items
1	Reading efficacy beliefs	7
2	Reading values and goals	12
3	Social aspects of reading	5
4	Reciprocal teaching	12
Total number of items		36
Total score		180

- Instructions of the scale

They are written in English. They are easy to understand. They include information about the purpose of the scale, its dimensions, the distribution of the scores on the points of the scale and the way of recording the answer.

- Piloting the scale

Piloting the scale was done with the same piloting sample (thirty-five (35) male and female English majors).Time taken by each student was recorded, divided by the whole time taken by each student was recorded, divided by the whole number of students who took the scale and was found to be 50 minutes. Thus, the testing time of the scale was 50 minutes.

- Instructions of the scale

They are written in English. They are easy to understand. They include information about the purpose of the scale, its dimensions, the distribution of the scores on the points of the scale and the way of recording the answer.

- Validity of the scale

- 1- The face validity of the scale was determined by submitting it to a jury of 5 TEFL experts to judge its validity according to the following criteria: linguistic stating of statements, relatedness of the statements to the components of reading motivation and suitability of the statements to the subjects. The suggestions and recommendations of the jury members were taken into consideration and the scale was revised to reach its final form.
- 2- Pearson correlation was used to determine the internal consistency of the scale. The same piloting sample (35 second-year English majors)

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took the scale. The internal consistency of each statement was calculated. The internal consistency of the individual statements of the dimensions of the scale was calculated as shown in table (8). The correlation between the four dimensions of the scale and the total scale was determined as shown in table (9). The values of the correlation coefficient are considered acceptable.

Table (8)
The Internal Consistency of the Scale of Reading Motivation

Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency
1	.705**	13	.465**	25	.849**
2	.569**	14	.596**	26	.915**
3	.672**	15	.498**	27	.761**
4	.626**	16	.502**	28	.946**
5	.536**	17	.462**	29	.606**
6	.651**	18	.393*	30	.542**
7	.621**	19	.440**	31	.849**
8	.539**	20	.634**	32	.606**
9	.473**	21	.653**	33	.915**
10	.506**	22	.653**	34	.946**
11	.433**	23	.721**	35	.761**
12	.630**	24	.761**	36	.946**

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Note. *. Correlation is significant at the 0.05 level (2-tailed).

Table (9)
The correlation between each dimension and the total scale of Reading Motivation

Dimensions	Internal consistency
Reading efficacy beliefs	.697**
Reading values and goals	.862**
Social aspects of reading	.527**
Reciprocal teaching	.498**

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Note. *. Correlation is significant at the 0.05 level (2-tailed).

- Reliability of the scale

Establishing the reliability of the scale was done during piloting. The same piloting sample (35 second year English majors) were randomly selected to take the scale. The reliability coefficient of the scale was determined using:

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a- Alpha Cronbach (α) coefficient which is (0.834). It is considered acceptable as shown in table (10).

Table (10)
The Cronbach Alpha's Reliability coefficient of the Scale

Domains	Means	Variance	Standard Deviation	No. of items	Alpha
Reading efficacy beliefs	24.27	22.330	4.725	7	0.732*
Reading values and goals	47.48	40.458	6.361	12	0.755*
Social aspects of reading	20.17	11.029	3.321	5	0.703*
Reciprocal teaching	36.63	6.946	2.636	12	0.968*
Total	128.34	144.663	12.028	36	0.834*

Note. *. Alpha is significant at the 0.05 level (2-tailed).

b- Test- retest method with nearly two weeks intervals between the first and the second ratings was administered on a randomly chosen sample of 35 second year English majors for calculating reliability coefficient of the scale. The total reliability coefficient of the scale is (0.998) which is considered acceptable as shown in table (11).

Table (11)
Test-Retest Reliability Coefficient of the Reading Motivation Scale

Dimensions	Means	SD	Means	SD	t-value	Sig. (2-tailed)	Correlation
Reading efficacy beliefs	24.11	4.645	24.06	4.627	1.435	0.160	.999**
Reading values and goals	47.03	6.171	47.00	6.145	0.572	0.571	.999**
Social aspects of reading	20.17	3.321	20.17	3.330	0.000	1.000	.997**
Reciprocal teaching	36.63	2.636	36.77	2.568	-1.094	0.282	.956**
Total	127.94	11.438	128.00	11.558	-0.421	0.676	.998**

Note. **. Correlation is significant at the 0.01 level (2-tailed).

(t) value is not significant at the 0.01 level (2-tailed).

- ***The material***

a. The material (the training program) consists of 4 units: one for introduction, two for focus strategies and another one for multiple-

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strategy instruction. The reading passages of the training program included both fiction and informational texts.

- b. The construction of the training program has gone through the following steps: reviewing the literature related to the domain of the higher order thinking skills and reading motivation in relation to reciprocal teaching, stating the general and the specific objectives of each lesson, preparing the content, submitting the program to some jury members to be judged according to the following criteria; statement of items, academic verification of the content, appropriateness of the method and the techniques used for the content and the participants of the study and applicability of the program.

- Instructional design of the study

- 1- A questionnaire of reading habits was designed and applied by the researcher to be acquainted with the goals, beliefs and values towards reading represented by English majors, especially sophomores. In addition to that there was a need to identify their feelings, needs, opinions and the social conditions that surround their reading context.
- 2- Pre-testing the participants of both the experimental and control groups, (N=70), using the test of higher-order thinking skills and the scale of reading motivation before the intervention to ensure their equality at the entry level.

3- The experimental treatment

- a- They were instructed using the reciprocal teaching – based program that incorporates the four strategies of reading comprehension: predicting, clarifying, questioning and summarizing. It was based on short term intervention and intensive classroom support.
- b- For ensuring maximum growth in reading comprehension, the gradual release model by Fisher and Frey (2008) is adapted in the present study. The adapted model includes the following:
 - 1- Discussion protocol:
 - (a) -teacher's modeling, (b)- guided practice with teacher's or peers' feedback, and (c)-independent practice (role reversal) and reflection.
 - 2- Four instructional foundations, similar to those in Ozckus (2010), were incorporated to improve the coaching sessions after classroom demonstrations or observations:

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- (a)- scaffolding, (b)- think-aloud, (c)- metacognition and (d) cooperative learning.
- 3- Other strategies were added by the researcher to the intervention of reciprocal teaching: visualization, reflection and evaluation.
- 4- The final intervention of reciprocal teaching worked as follows:
 - a- teacher's modeling using constant think-aloud and visualization.
 - b- guided practice in cooperative pairs or teams providing the right amount of scaffolding.
 - c- independent practice of role reversal on their own where the students were assigned to take turns "teaching" and "modeling" these strategies.
 - d- using a sufficient amount of metacognition for discussing the steps involved in each strategy through the use of "reflection" and "evaluation".

4- The control treatment.

The participants in the control group received instruction on the reading course using the regular way with no reciprocal teaching intervention.

- 5- Post testing the participants in both groups (N=70) using the test of higher order thinking skills in reading and the scale of reading motivation.

Instructor

The researcher taught only the experimental group by herself while the control group was taught by another lecturer nearly of the same level of the researcher. This was done to avoid contamination of the procedures of teaching the control group and to keep the two groups intact.

Findings

Hypothesis 1

The first hypothesis of the study predicted that there would be a statistically significant difference (favoring the experimental group) between means of scores obtained by the participants of the experimental and control group on the post-performance of the test of higher-order thinking skills in reading. Statistical analysis of the obtained data showed that the experimental group achieved a higher degree of improvement than the control group on the test of higher-order thinking skills in reading as t-value (30.198*) is significant at (0.05) level and beyond. Thus, the first hypothesis is confirmed. Table (12) below shows the data obtained to test this hypothesis.

Table (12)
Means, Standard deviation, t value, η^2 and effect size on the post-performance of both the experimental and control group of the test of higher-order thinking skills in reading

Aspects of comparison	Group	N o.	Mean	Std. Deviation	t-value	Df	Sig. (2-tailed)	η^2	Effect size
The higher-order thinking skills in reading	Post-exp.	35	47.51	2.020	30.198*	56.494	0.000	0.9641	Large
	Post-con.	35	27.83	3.285					

Note. *. significant at the 0.05 level (2-tailed).

To ensure the impact of the reciprocal teaching-based program on improving students' higher-order thinking skills in reading, eta-squared formula statistics (η^2) was used. Cohen et al. (2007:522) point out that when eta-squared value = 0.01, the effect is considered weak, when it is = 0.06, the effect is considered medium and when it is = 0.14 the effect is large. As shown in table (12) eta-squared value(η^2) equals (0.9641) which is considered large. Thus, reciprocal teaching- based program is considered with high effect in improving second- year English majors' higher- order thinking skills in reading.

Additionally, the comparison of the scores obtained by the students of both the experimental and control groups on the pe-post test of higher-

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order thinking skills in reading showed that the experimental group surpassed the control group as t- value (28.017) is significant at 0.05 level. Though the results showed that the control group achieved some improvement in the post- performance of the test, as they had received a reading course through regular instructions. However, the improvement of the experimental group was higher as eta-squared value(η^2) for the experimental group equals (0.9203) which is considered high and greater than the eta-squared value(η^2) for the control group which equals (0.3193). Thus, reciprocal teaching - based program is considered better than the regular instructions of teaching in improving learners' higher-order thinking skills in reading. This is shown in table (13).

Table (13)

Means, Standard Deviation, t value, η^2 and effect size between mean scores of the experimental and the control group on the Pre-Post performance of the test of higher-order thinking skills in reading. N=35

Aspects of comparison	Group	Mean	Mean diff.	Stand. Dev.	t-value	Df	Sig. (2-tailed)	η^2	Effect size
The reading comprehension test	Pre-exp.	25.77	-21.743	4.440	-	34	0.000	0.9203	Large
	Post-exp.	47.51		2.020	28.017*				
	Pre-con.	25.86	-1.971	3.117	-5.648*	34	0.000	0.3193	Large
	Post-con.	27.83		3.285					

Note. *. significant at the 0.05 level (2-tailed).

Hypothesis 2

The second hypothesis of the study predicted that there was a statistically significant difference (favoring the experimental group) between means values obtained by the students of the experimental and control group on the post-performance of the scale of reading motivation. Statistical analysis of the obtained data showed that the experimental group achieved a higher degree of improvement than the control group on the scale of reading motivation as t-value (57.868) is significant at (0.05) level and beyond. Thus, the second hypothesis is confirmed. Table (14) below shows the data obtained to test this hypothesis.

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Table (14)

Means, Standard Deviation, t value, η^2 and effect size on the post-performance of both the experimental and control group of the scale of reading motivation.

Aspects of comparison	Group	No.	Mean	Std. Deviation	t-value	df	Sig.(2-tailed)	η^2	Effect size
Reading efficacy beliefs	Post-exp.	35	34.66	0.639	25.572	37.094	0.000	0.9058	Large
	Post-con.	35	21.43	2.993					
Reading values and goals	Post-exp.	35	59.09	1.095	30.163	39.229	0.000	0.9305	Large
	Post-con.	35	38.26	3.936					
Social aspects of reading	Post-exp.	35	24.54	0.780	22.828	40.237	0.000	0.8846	Large
	Post-con.	35	14.20	2.564					
Reciprocal teaching	Post-exp.	35	59.91	0.284	101.538	37.025	0.000	0.9934	Large
	Post-con.	35	36.31	1.345					
Total of dimensions	Post-exp.	35	178.20	1.568	57.868*	37.635	0.000	0.9801	Large
	Post-con.	35	110.20	6.773					

Note. *. significant at the 0.05 level (2-tailed).

To ensure the impact of the reciprocal -based program on improving students' reading motivation, eta-squared formula statistics (η^2) was used. As shown in table (12) eta-squared value(η^2) equals (0.9801) which is considered large. Thus, reciprocal teaching- based program is considered with high effect in improving second-year English majors' reading motivation. Additionally, the comparison of the scores obtained by the students of both the experimental and control groups on the pe-post scale of reading motivation showed that the experimental group surpassed the control group as t- value (85.330) is significant at (0.05) level and beyond. Eta-squared value(η^2) equals (0.9954) which is considered large.

Though the results showed that the control group achieved some improvement in the post- performance of the scale of reading motivation. However, the improvement of the experimental group was larger as eta-squared value(η^2) for the experimental group equals (0.9954) which is considered high and greater than the eta-squared value(η^2) for the control group which equals (0.0596). Thus, reciprocal teaching-based program is considered better than the regular instructions in improving learners' reading motivation. This is shown in table (15).

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Table (15)
Means, Standard Deviation, t value, η^2 and effect size between mean scores of the experimental and the control group on the Pre-Post performance of the scale of reading motivation. N=35

Aspects of comparison	Group	Mean	Mean diff.	Stand. Dev.	t-value	df	Sig. (2-tailed)	η^2	Effect size
Reading efficacy beliefs	Pre-exp.	21.23	-13.429	2.787	-27.460	3	0.000	0.9569	Large
	Post-exp.	34.66		0.639		4			
	Pre-con.	21.37	-0.057	2.991	-0.813	3	0.422	0.0191	Small
	Post-con.	21.43		2.993		4			
Reading efficacy beliefs	Pre-exp.	38.03	-21.057	4.225	-28.943	3	0.000	0.9610	Large
	Post-exp.	59.09		1.095		4			
	Pre-con.	38.17	-0.086	3.714	-0.683	3	0.499	0.0135	Small
	Post-con.	38.26		3.936		4			
Social aspects of reading	Pre-exp.	13.94	-10.600	2.555	-24.973	3	0.000	0.9483	Large
	Post-exp.	24.54		0.780		4			
	Pre-con.	14.09	-0.114	2.560	-0.725	3	0.473	0.0152	Small
	Post-con.	14.20		2.564		4			
Reciprocal teaching	Pre-exp.	36.09	-23.714	0.373	-	3	0.000	0.9992	Large
	Post-exp.	59.80		0.531	210.223	4			
	Pre-con.	36.17	-0.143	0.707	-1.221	3	0.230	0.0420	Small
	Post-con.	36.31		1.345		4			
Total of dimensions	Pre-exp.	109.29	-68.800	4.902	-	3	0.000	0.9954	Large
	Post-exp.	178.09		1.522	85.330*	4			
	Pre-con.	109.8	-0.400	6.058	-1.468	3	0.151	0.0596	Small

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con.	0		4
Post- con.	110.2 0	6.773	

Note. *. significant at the 0.05 level (2-tailed).

Discussion

1- The inherent features of the study on the basis of the students' reflections

- Early at the beginning of the intervention, most of the students showed their interest to be instructed with some reading techniques to help them improve their reading skills.
- Additionally, they actively involved in the reading tasks through all its stages of the discussion protocol starting from the guided practice to the gradual release of responsibility in the independent practice where they reversed their role to take the teacher's.
- Gradually they showed their motivation for more practice in reading for developing their skills as they were highly activated through the strategies presented and the types of questions used that address their higher-order levels of thinking.

2- The interpretation of the results with reference to the related literature

- Reciprocal teaching routines force students to participate and respond to activities even if their reading abilities haven't been fully developed. It offers ample opportunities of trial and error from the part of the student with continuous scaffolding and adjustment from the teacher. Difficulties in understanding are attributed to challenges in the text rather than student inadequacy. Reciprocal teaching was intended to imitate natural learning both in the home and school settings and in the work place (Palincsar and Brown, 1984; Ozckus, 2010; Gomma, 2015 and Delaney-Beane, 2017).
- Teacher's modeling affects understanding positively. Students need to internalize the strategy they use to comprehend what they read (Duffy, 2002). From this aspect, teacher's setting model is

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influential for students during the teaching of strategy directly. Students can only acquire self-regulation skills required by this strategy this way (King and Johnson, 1999).

- Reciprocal teaching provides a theoretically sound avenue for fostering the deeper understanding of broad range of texts within the higher education academic environment of the students (Doolittle et al., 2006).
- The strategy is considered more effective than other comprehension activities due to teacher's positive contribution, peer support, constant guidance and extra time provided for comprehension. It enables better and quicker comprehension, motivates students, and creates more fun because it allows moving around during the activities (Hacker & Tenent, 2002).
- Explicit instruction of reading motivation is a feasible tool to enhance students' reading comprehension through practice in reading motivation activities (Ahmadi et al., 2013).

3- The relation of the results of the present study to the results of other conducted studies

a- Results of studies that coincide with those obtained by the present study

- The results of the present study corresponded with Soonthornmanee (2002), Mickinnon and Armantia (2014), A'yune and Ynus (2017) and Ramadan (2017), who confirmed the use of RT for developing students' HOTS due to engaging the students in using their schemata as well as their metacognitive abilities.
- The integration of motivation and strategy instruction practices (including reciprocal teaching) positively influenced student motivation and comprehension (Schutte and Malouf, 2007; Ahmadi and Hairul, 2012; Ramita, 2015 and Ahmadi, 2016).

b- Results of studies that show the limitations of the reciprocal teaching strategies

Though the four strategies of reciprocal teaching are extremely effective, they do not form an entire literacy program. All students at all levels need more than just reciprocal teaching, a wide variety of literacy experiences. likewise, Reciprocal teaching should be applied for a longer time in order to gain more positive results in enhancing

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higher levels of thinking in reading and foster students' motivation for reading (Okking et al.,2017).

Conclusion

The findings of this study confirmed the utility of using reciprocal teaching with university students for developing their higher levels of thinking in reading, in addition to their reading motivation. Through reciprocal teaching, reading strategies are modeled, explained and guided within a supportive social environment. The students are given great opportunities for wider involvement through paying attention to the teacher's modelling of the strategies, engaging in peer discussion, sharing information, asking questions without being ashamed, answering questions, learning from others and helping others to learn. As for teachers, they play multiple roles like: manager, facilitator, planer, manager, quality controller through conducting reciprocal teaching in teaching reading. Thus, employing reciprocal teaching strategies enable learners to become more aware of their thinking at higher levels in the reading processes and consequently building their metacognitive awareness.

Implications

- 1- The present study adds to the literature on using reciprocal teaching strategies in higher education.
- 2- It provided various options for teaching and reinforcing the strategies that would be considerably easier for teachers than learning a completely new model.
- 3- Applying the four strategies of reciprocal teaching 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' abilities.
- 4- Using reciprocal teaching strategies helps in preparing students for high-stakes tests at different grade levels and in a variety of subject areas, without depriving them from the high-quality instruction that leads to high levels of literacy.
- 5- The main implication of this present study is that student centered approaches to teaching and learning processes, such as the reciprocal teaching strategy, are very much needed to develop students'

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vocabulary, activate their prior knowledge, improve their higher levels of thinking in reading, foster their reading motivation to practice further reading tasks and enhance their reading meta-cognition skills to be more efficient and strategic readers, in addition to encouraging students to become more active, cooperative and interactive.

- 6- Using the reciprocal teaching strategies in teaching reading helps teachers to focus on explicit instruction for reading, guide and monitor their students' learning and promote their higher level of thinking in reading.

Recommendations

- 1- Reciprocal teaching should be incorporated into staff development sessions.
- 2- English language teachers should provide students with more reading activities, and train them to practice the cognitive and meta cognitive strategies while reading. In this regard, teachers should not lecture all the time, and explain everything to the students but they should encourage the students to read and find out by themselves the different layers of meanings in the texts.
- 3- The selections of the reading materials used should be based on the students' reading abilities, needs and interests.
- 4- It is recommended that scaffolding should be explicitly used in the classroom to support effective learning. When teachers consciously and consistently apply scaffolding techniques, learning strategies become systematic
- 5- the model provided could be used to teach parents (and volunteers) how to help promote comprehension skills among their children and therefore, reinforce reading skills that would help students to develop further.
- 6- The current study implies and recommends utilizing the positive social values among learners to encourage mutual learning through peers' support.

Suggestions for further research

- 1- The effectiveness of using reciprocal teaching strategies on developing the higher- levels thinking skills in English language with students at other grade levels.

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- 2- The effect of the reciprocal teaching strategies on developing students' thinking in other subjects.
- 3- The use of the reciprocal-teaching strategy and testing its effect on teachers' performance inside the classroom as well as on their students' maximal thinking skills.
- 4- A possible future study could investigate how each strategy in isolation or in varying combinations impacts reading comprehension growth in students.
- 5- Repeating the study over a longer period and incorporating different techniques, such as computer-assisted learning and e- mapping or graphic organizers.

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