Effects of explicit reading strategy instruction on grade nine students' reading strategy use

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Abstract

The study investigated the effects of explicit reading strategy instruction on students' use of reading strategy. The study employed the embedded design. Two randomly selected intact classes with 33 and 35 participants were included in the study as non-treatment group and treatment group, respectively. Data were collected using quantitative and qualitative data gathering instruments through reading comprehension tests before and after the intervention, and a retrospective interview, respectively. The data collected through reading comprehension test were analyzed using quantitative data analysis technique. The data gained through retrospective interview were analyzed through edited verbatim transcription. Generally, the findings suggested that explicit reading strategy instructions accompanied by the three basic reading instructions i.e., the pre-, the while-, and the post-reading instructions favored students' reading strategy as used by the participants in the treatment group. The participants used reading strategy to answer questions that require higher-level thinking in the post-intervention. There was a statistically significant difference in each reading strategy (t=-2.660, df=66, p=.010; t=-3.723, df=66, p=.000; t=- 5.909, df=66, p=.000; t=-5.886, df=66, p=.000) guess the meaning of new words, state main ideas, evaluate the text, and inferential understanding, respectively. Considering the pedagogical support of explicit reading strategy instructions as a continuing process, it is recommended that programs be tailored to increase students' use of reading strategies as an essential part of reading instruction.

Keywords: *low-level thinking, high-level thinking, reading strategy instruction, reading strategy use*

Introduction

Reading is regarded as one of the four major language skills which help students to master a second/foreign language and help them to achieve in their academic endeavors (Alderson, 2000; Grabe, 2009). In language instruction, reading can be taught through reading strategy instruction which is one way of teaching reading. Research has been conducted to examine the effects of reading strategy instruction on students' achievement in reading comprehension and reading self-efficacy (Aghaie & Zhang, 2012; Tavakoli & Koosha, 2016). These studies were conducted out of the context of Ethiopian learners' lives. It is rare that the knowledge of the effects of explicit reading strategy instruction on reading strategies used by students with a homogenous group in Ethiopian secondary schools, specifically grade nine students in the Oromia regional state. The present study, therefore, aimed to bridge the research gap by conducting explicit reading strategy instruction on grade nine students in Gute Secondary School, East Wollega, Oromia, and examining the effects of explicit reading strategy

instruction could help grade nine secondary school students in Ethiopia to enhance their use reading strategy.

In the present context, secondary school students are expected to read and answer comprehension questions that require lower-level thinking and higher-level thinking. As Pearson and Cervetti (2017) and Westwood (2001) explain, reading comprehension can be categorized into reading comprehension that requires lower-level thinking and reading comprehension questions that require higher-level thinking. Questions that require lower level thinking, for example, literal level comprehensions require a reader to understand the basic facts that are flourished in the text. Hence, in this study, twenty-one (21) questions were prepared to examine whether the students in both the treatment and non-treatment groups had a statistically significant difference in their reading strategy as used by the students to answer reading comprehension questions that require a lower level thinking process, both before and after the intervention. Of the twenty-one (21) questions, nine (9) questions are explicitly stated and should be answered according to the passage — saying *true* if the statement is correct and *false* if not. Two (2) questions ask readers to fill in the blanks and other two (2) questions ask them to put ideas in order. The remaining eight (8) questions ask readers to search specific information.

Regarding reading comprehension questions that seek a higher level thinking processes, as opined by Westwood (2001), inferential, critical, and creative level comprehensions are higher-level comprehension processes that involve higher cognitive skills of analyzing, interpreting, deducing the meaning, inferring, understanding, summarizing, checking and critiquing, generating, planning, and producing.

Statement of the problem

Grade nine students at Gute Secondary School show poor use of reading strategy. This has been observed when they are provided with reading comprehension questions that require employing reading strategies. Their difficulties likely stem from an inability to properly use the reading strategies during the pre-reading, the while-reading, the post-reading instruction. Furthermore, students at this grade level were unable to employ the reading strategies that help them answer reading comprehension questions to be answered through higher-level thinking and lower-level thinking accordingly. Therefore, the present researcher examined the effect of explicit reading strategy instruction on students' reading strategy use.

Explicit reading strategy instruction is a kind of reading strategy instruction –which is viewed as a teaching method. It focuses on explicit reading strategy instruction in the regular second or foreign language reading lessons through the three basic-reading strategy instructions: the pre-, the while-, and the post-reading strategy instructions (Hedgcock & Ferris, 2009). Fewer studies have been conducted to investigate the awareness that students in various grade levels possess regarding reading strategy use (Chen & Chen, 2015). To help students use reading strategies to comprehend a given reading text, the role of effective instruction is crucial. Teachers are authorized individuals to employ the reading strategy instruction. Students may know the strategies needed to succeed in their reading, but they are not able to use the strategies successfully. Therefore, a classroom teacher is expected to smoothly run strategy

instruction to help learners to use a given reading strategy selectively and know what strategy to use when to use it, how to use it, and why to use it.

Good readers usually use various reading strategies based on the context. For example, Hedgcock and Ferries (2009) have proposed the different reading strategy instructions as per the three basic reading instructions, such as the pre-reading, the while-reading and the post-reading strategy instructions. Other scholars, such as Ozek and Civelek (2006) have identified the different reading strategies employed during different reading phases or stages across different levels of students. Students should be encouraged to know what strategies to use, when to use them, how to use them, and why to use them in their reading process. Knowing how to use reading strategies can help students monitor their reading and use the required strategies (Duke and Pearson, 2002). This involves learning, planning for reading, monitoring comprehension failures, and regulating strategy use while reading (Brown, 2007b). The purposes of using these reading strategies are directly or indirectly concerned with information processing to read and understand, answer explicitly stated questions, and answer questions whose answers can only be generated beyond the lines (Westwood, 2001).

Therefore, students can use reading strategies if explicit reading strategy instruction is employed strategically in the classroom. In effect, students become aware of declarative, procedural, and conditional knowledge, i. e., what strategy to use, how to process, and when to employ the strategies. These could, in turn, enable students to identify the purposes of reading thereby answer literal level, inferential level, critical level, and creative level comprehension questions (Ghaith, 2018; Grabe, 2002; Pearson and Cervetti, 2015; Pearson & Cervetti, 2017; Tindall, 2010).

Some related research has been conducted in the Ethiopian context, from recent studies, for example, Geleta, Tamiru, and Sherif (2022) investigated the effects of explicit reading strategy instruction on students' achievement in reading comprehension. Two intact classes were selected for study, and the treatment group received reading lessons accompanied by the three basic reading instructions (the pre-, while-, and post-reading instructions through explicit reading strategy instruction) but the non-treatment group received reading lessons in the usual way of learning/teaching reading. The study employed an embedded design since data were collected using qualitative data gathering instruments through reading comprehension tests before and after the intervention, and an interview was also employed to gather data from the randomly selected participants from the treatment group. The findings emphasized the importance of employing explicit reading strategy instruction in enabling readers to comprehend reading comprehension questions, especially as it helps students properly handle reading comprehension questions that seek higher-level thinking. The study recommended that, to develop students' higher level thinking, classroom reading teachers should create opportunities for the readers while delivering reading lessons by presenting activities that go with the pre-, while, and post-reading instructions. Secondary school language teachers are expected to present reading lessons through explicit reading strategy instruction as this one of the most important instructions in reading lesson presentations. The study recommended that future

researchers conduct research on the effects of explicit reading strategy instruction on students' use of reading strategy that requires higher- and lower-level thinking.

However, currently, reading strategies used by secondary school students to read and comprehend reading comprehension questions, in the Ethiopian context, are declining. In other words, if students are asked to comprehend a given reading text, they exhibit poor reading comprehension. Various researchers suspect that students ether misuse or are unaware of the reading strategies that could help them read and comprehend the text. If classroom reading teachers explicitly employ strategy instruction, students might be aware of what strategy to use (declarative), how to use (procedural), and when and why to use (conditional) the strategy. Reports from secondary school teachers, experts, parents, and stakeholders suggest that many students are unable to understand a given reading text after attending eight years of instruction in the English language. Furthermore, local research showed that students' performance in reading strategy use in Ethiopian secondary schools is below the expected standard. This calls for an urgent need to improve students' reading strategy use — otherwise, it will continue to hinder students' academic success. If we expect better achievement in reading comprehension, the cause for students' failure to use reading strategies to read and comprehend a given reading text has to be investigated. According to the researchers' informal observation and practical presentation of reading lessons in the actual, students were unable to read and understand a reading text designed for their grade level because the they might not be aware of what (declarative), how (procedural), and when and why (conditional) to use reading strategy. If students are able to identify what, when, and why and how to use the strategies, they could use them based on the context in which the ultimate goal of reading will be achieved. Hence, this study attempted to answer the following research questions:

- Is there a statistically significant difference in the mean score value of each reading strategy that requires low-level thinking as used by the treatment and non-treatment groups?
- Is there a statistically significant difference in the mean score value of each reading strategy that requires higher-level thinking as used by the treatment group and the non-treatment group after the intervention?
- How do the participants in the treatment group reflect on their experiences when they are provided with explicit reading strategy instruction?

Theoretical framework

The research followed the orientation of the constructivist view of learning/teaching reading. The Constructivist proponents give a broader room for readers who construct meaning from text. In this theoretical instance, meaningful construction occurs when a learner actively engages in the reading process. For them, a learner integrates the new knowledge (knowledge to be learned) with their prior knowledge so that they can achieve their learning. According to Constructivist Theory, individuals seek understanding of the world in which they live and work. Constructivist proponents believe that individuals develop subjective meanings of their experiences directed toward certain objects or things.

In the training and application of these strategies, students preview the text to get the main idea of the topic. When looking at and previewing the text, readers quickly look at the title, sub-titles, headings, sub-headings, and pictures, tables, or illustrations that accompany the text to get a general idea of what a passage is about. At this stage, the reading teacher is expected to activate students' prior knowledge of the topic. Skimming and scanning are the two most reading strategies for learners of EFL as well as native speakers (Brown, 2007b). Skimming strategies help readers predict the purpose of the passage, main topic, thesis statement, and possibly the supporting ideas. An English language teacher can train students to skim passages, for example, they may impose a time limit when looking through a few pages of the material and ask students to identify the main points and search for specific information (Brown (2007b). It is possible to assess students' creative level comprehension through summary writing which inspires the reader to new and original thinking. This is a part of a post-reading strategy that requires a reader to apply a reading-writing connection to sort the main ideas and the theme of the text and write a new version of a text using his/her understanding (Hedgcock& Ferris, 2009; Westwood, 2001). In summarizing training tasks, readers may be required to shift the skills of reading to summarization creating either in spoken forms or written forms. In this regard, empirical research studies have shown that reading strategy instruction based on constructivist learning/teaching reading promotes students' reading strategy use (Bedir, 2002; Li, Gan, & Leung, 2022; Wang, 2009) and reading motivation (Wang, 2009). Researchers also agree that reading strategy instruction enhances reading self-efficacy (Tavakoli & Koosha, 2016).

In the context of the constructivist view, the role of the learner is much emphasized in a reading lesson. For example, a learner is expected to construct, interpret, infer, analyze, and evaluate a given reading text. Learners are viewed as active individuals who construct knowledge and comprehend meaning through reading processes involving discovery, interpretation, and evaluation of the text. Consequently, a teacher serves as a facilitator, and both the classroom reading teacher and students are expected to learn from each other. Rather than imparting knowledge to students, teachers collaborate with students to create knowledge and understanding in their social contexts. This implies that the classroom reading teacher's culture, values, and prior knowledge play a significant role in shaping the interaction between learners and the task, enabling the learners to construct meaning.

Such interaction can happen between the reader, the text, the activity, and the context. This may explain why Duffy and Jonnassen (1992) claimed that constructivist instructional developers and classroom reading teachers should create suitable contexts, for learners to construct meaning through transactions between the reader, the text, and the context. In this regard, reading is viewed as a dynamic and complex phenomenon where meanings reside in the way learners conceptualize, extract, and interpret the text.

In reading strategy instruction, the constructivist proponents (for example, Duke & Pearson, 2002; Pearson & Cervetti, 2017; Snow, 2002) emphasize the importance of reading in the EFL classrooms. The constructivist view of reading has many implications for language teachers in the actual reading strategy instruction (Wilson & Lianrui, 2007). First, teachers are expected to decline teaching reading by simply practicing reading, but need to focus on

assisting students on what strategies to use (declarative), how to use the strategies (procedural), and when and why to use the strategies (conditional) through explicit reading strategy instruction to increase students' capacity to use them. Second, teachers need to give better emphasis and follow the three basic reading instructions than simply employing the usual teaching procedure suggested in the student's textbook. Third, English language teachers need to show how learners build good reading skills, and how to fix up their comprehension failures.

As applied to the present study, this theory holds that the present researcher would expect the independent variable (explicit reading strategy instruction) to influence students' reading strategy use because the constructivist view of the reading process conceives the reader as an actively engaged participant who uses a variety of prior knowledge and reading strategies to frequently interact with others as s/he constructs meaning from the reading text.

Research gap

Currently, secondary school students' reading strategy use in the Ethiopian context is drastically decreasing from time to time. For example, when students are requested to comprehend a given reading text, they exhibit poor reading strategy. According to reports from secondary school teachers, experts, parents, and stakeholders, many students are unable to properly use a given reading strategy when the context requires them to read and understand a text after eight years of English instruction. Furthermore, the reading strategy employed by students in Ethiopian secondary schools is below the expected standard (Yenus, 2018). This calls for an urgent need to improve students' use of reading strategies as continued underuse could be detrimental to their academic success.

However, to the best of the researchers' knowledge, none of the studies analyzed in the review section examined the effects of explicit reading strategy instruction on the strategies used by secondary school students. No one has examined the effects of the explicit reading strategy instruction on each reading strategy as used by students in EFL classrooms in the local context of Ethiopia. These gaps prompted present researcher to investigate the effects of explicit reading strategies requiring higher- and lower-level thinking. Therefore, this study attempts to address the issue of students' failure to use reading strategies appropriately in response to the demands of the context, such as answering reading comprehension questions.

Materials and methods

This study aimed at examining the effect of explicit reading strategy instruction on grade nine students' reading strategy use. Hence, the embedded design was employed because the design helps the researcher to integrate the quantitative data with the qualitative data. Just to come up with better findings and conclusions, the present researchers primarily focused on an intervention-based study that involved a treatment group and a non-treatment group. According to Creswell (2014), the embedded design gives room for the researcher to collect qualitative data to augment the intervention study.

Research setting and participants

The present study targeted ninth grade students at Gute Secondary School in East Wollega Zone. Grade nine students were taken as the study population for the study because the researcher believed that grade nine students are exposed to learning to read from grade 1 to grade 4, and in the next stage, from 5-8, students partially transition from learning to read to reading to learn. Beyond grade eight, students are expected to comprehend a given reading text accordingly (MOE, 2010) and know what strategies to use, when to use them, why, and how to use them based on context, text, and activities provided (Grabe, 2009; Grabe & Stoller, 2011). Based on this, the selection of the grade level was purposive because it is believed that grade 9 students are familiar with reading and the principles of reading to learn by the end of grade 8. As a result, it is assumed that it may not be difficult to examine the effect of explicit reading strategy instruction on grade nine students' reading strategy use.

Research instruments

Quantitative data were gathered through tests (pre-test before intervention and post-test after intervention). Qualitative data were gathered through the retrospective interview of the participants in the treatment group to obtain more robust findings.

Tests

In the present study, pretest and post-tests were used as the main data-gathering instruments. The test consisted of four reading comprehension passages from which thirty-nine questions were prepared. The reading comprehension questions comprised reading strategies that seek higher-level lower-level thinking processes. Twenty-one (21) questions were prepared to examine whether students in both the treatment and the non-treatment groups showed a statistically significant difference in their reading strategy (that requires a lower level thinking process) as used by the students before the intervention and after the intervention. These are nine (9) questions that inquired the students to say True or False, two (2) questions that asked the students to fill in the blank spaces, eight (8) questions that inquired the students to search for specific ideas, and two (2) questions that probed the students to put ideas in order. In addition, eighteen (18) questions were prepared to examine whether the students in both groups had a statistically significant difference in reading strategy as used before and after the intervention. From the reading comprehension questions that were prepared to be answered through a higher level thinking process, three (3) questions inquired a reader to answer reference questions, eight (8) questions to guess the meanings of new words, four (4) questions to state the main ideas of the text, one (1) question to evaluate the text, and two (2) questions to infer the answer. The main objective of the posttest was to check whether employing explicit reading strategy instruction brought any significant differences in the mean scores of the treatment group and the non-treatment group in their reading strategy as used by the participants.

Retrospective interview

In this research work, retrospective or post-task interview was used to have respondents recollect and report the thoughts they had in mind about the explicit reading strategy instruction they received and the improvement observed in their reading strategy as used by

the participants in the treatment group. In this way, the researchers asked students questions about what they understood and which reading strategies they used to answer the comprehension questions. The researchers then used the students' responses to prepare additional questions (Chamot, 2005). Ericson and Simon (1993, p. 220) indicate that a retrospective interview is one form of verbal protocol that can reveal "what information are attending to while performing their tasks, and by revealing this information, can provide an orderly picture of the exact way in which the tasks are being performed: the strategies employed, the inferences drawn from information…". Based on these views, the researcher prepared post-task interview questions based on the student's responses recorded during the reading activity. The retrospective interview was conducted after the students answered the reading comprehension questions to let them retain and recollect their thoughts while reading and answering the questions. In this way, the researcher examined the nexus between explicit reading strategy instruction and reading strategy as used by the participants in the treatment group. The researcher interviewed the respondents about whether the reading strategy instruction they received through explicit reading strategy instruction enabled them to achieve better achievement in reading as used by them to answer reading comprehension questions in the post-test than in the reading comprehension pre-test.

Procedures of data collection

The quantitative and qualitative data were gathered concurrently. The quantitative data (Reading Comprehension Tests) were collected before intervention started and after the intervention. The intervention continued for 9 weeks. During this time, the classroom reading teacher presented reading lessons that accompanied the three basic reading instructions (pre-reading, while-reading, and post-reading strategy instructions) with the adapted activities to the treatment group whereas reading lessons were presented through the usual method of reading lesson presentation as suggested in the student's textbook to the non-treatment group.

The qualitative data were collected through retrospective interviews to have respondents recollect and report the thoughts they had in mind soon after the task performance during the intervention and let them relate their achievement in reading comprehension with the strategy instruction they received.

Methods of data analysis

The quantitative data gathered through reading comprehension questions before the intervention and after the intervention were analyzed using descriptive statistics and inferential statistics. From the descriptive statistics, mean scores (M) and standard deviations (SD) were employed. The mean scores were calculated to indicate the arithmetic average of each group and to approximately see the difference between the treatment and the non-treatment in their test scores. The standard deviation was computed to examine the average distance of all the scores in the distribution from the mean for each.

Concerning the inferential statistics, the researcher employed an independent sample t-test to compare and determine the differences in the mean scores of the pre-intervention reading strategy as used by the treatment group and the non-treatment group and the post-intervention

reading strategy as used by the treatment group and the non-treatment group to address the first and the second research questions respectively.

Results and discussions

This section presents the analysis and results of both the quantitative and the qualitative data gathered through tests (pre-intervention and post-intervention) and retrospective interviews respectively. The quantitative data (tests) were gathered and analyzed to address research questions 1 and 2. The quantitative data were analyzed employing descriptive statistics, such as mean and standard deviation and inferential statistics test, such as an independent sample t-test to examine the effect of the intervention provided to the treatment group on students' reading strategy use. Furthermore, the qualitative data gathered through retrospective interviews were analyzed using an edited verbatim transcription method to examine how the intervention exerted change on enhancing the treatment group students' reading strategy use.

Regarding the quantitative data analysis, the mean (M) and standard deviation (SD) of the descriptive statistics were calculated and depicted in Table I and Table III. The results were also interpreted based on the mean score and the standard deviation. Accordingly, before the intervention, although the mean scores had a slight difference (non-treatment: M=4.69; 0.52; 0.60; 3.24 treatment: M=5.34; 0.57; 0.60; 2.60), for four of the items respectively (Table 1) and had the same level in using the reading strategy as used by the participants in the pre-intervention test. However, after the intervention, the results of the descriptive statistics for the post-test mean scores revealed that there was a big number difference between the treatment and non-treatment groups' mean scores in the reading strategy as used by the participants after the intervention (non-treatment: M=5.75; 0.78; 0.66; 4; treatment: M=6.37; 1.02; 1.11; 4.57)꞉ the treatment group's mean score exceeded that of the non-treatment group by 0.62; 0.24;0.45;0.57 mean scores in the reading strategy as used by the participants to answer reading comprehension questions, answering questions that bear explicitly stated ideas, filling in the blank spaces, putting ideas in order as appeared in the text and searching for specific information respectively. In the SD results of the pretest, the score deviates ±2.14; ±0.79; ±0.65; ±1.98, and ±1.76; ±0.81; ±0.65; ±1.35 for the non-treatment and treatment group in the reading strategy as used by the participants to answer reading comprehension questions that bear explicitly stated ideas, filling in the blank spaces, putting ideas in order as appeared in the text, and searching for specific information respectively. The SD results for the post-test also revealed that the scores in the non-treatment group and the treatment group deviated from ±1.5; ±0.92; ±0.59; ±1.5 and ±1.75; ±0.82; ±0.75; ±1.9 from the intervention mean scores for the reading strategy as used by the participants to answer reading comprehension questions explicitly stated, filling in the blank spaces, putting ideas in order, and searching for specific information from the text, respectively. This revealed that the scores in the treatment and non-treatment groups were approximately dispersed from the mean scores equally both before and after the intervention.

Table 1. Comparison of the mean scores of the non-treatment and treatment groups on each reading strategy that requires low-level thinking

S/ No	Reading Strategy	No of items	Treatment group (35)				Non-treatment Group (33)			
			Before Intervention		After Intervention		Before Intervention		After Intervention	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	Answering questions that bear explicitly stated ideas (say True or false based the reading passage)	9	5.34	1.76	6.37	1.75	4.69	2.14	5.75	1.5
2	Filling in the blank spaces	2	.57	.81	1.02	.82	.51	.79	.78	.92
3	Putting ideas in order	2	.60	.65	1.11	.75	.60	.65	.66	.59
4	Searching specific ideas	8	2.60	1.35	4.57	1.9	3.24	1.98	4	1.5

Table 1 depicts the comparison of the mean scores of the non-treatment and the treatment group students on each reading strategy as used by them to answer the reading comprehension questions set from the reading passage. Questions that require lower-level thinking processes are directly taken from the reading passages. Twenty-one questions were designed to determine whether there was a statistically significant difference in the use of lower-level reading strategies before and after the intervention for students in both the treatment and non-treatment groups. Of these, nine were True/False questions, two were fill-in-the-blank, two required students to arrange ideas in the correct order based on the reading passage, and eight asked students to locate specific information within the passage.

Table 1 also depicts the comparison of the mean scores for each reading strategy as used by the participants to answer reading comprehension questions (four themes). As displayed in the table, the mean score for the four themes at pre-intervention (MBIT=2.27) for the treatment group is similar to the non-treatment group's mean score for the four themes i.e., (MBINT=2.26); whereas, after the intervention, as displayed in the table, the treatment group's mean score (MAIT=3.27) exceeded the non-treatment group mean score (MAINT=2.80). The data for the participants in the non-treatment group showed an increase in mean scores i.e., (MBINT=2.26 and MAINT=2.80). Again, the data for the participants in the treatment group showed a mean score increase i.e., (MBIT=2.27 and MAIC=3.27). Although a mean score increase is observed in the descriptive statistics data, it is uncertain to conclude whether there was a significant difference. To avoid this ambiguity, the researchers conducted a statistical t-test analysis to conclude if there was a statistically significant

difference being observed in each the reading strategies as used by the participants between the treatment and non-treatment groups.

Table 2. Independent Samples t-test results on each reading strategy that requires a lower level of thinking

	Reading Strategy	test	t	df	Sig. (2-tailed)
1	Answering questions that bear explicitly stated ideas (say True or false based the reading passage)	TBI	-1.360	66	.178
		TAI	-1.548	66	.126
2	Filling in the blank spaces	TBI	-.288	66	.774
		TAI	-1.134	66	.261
3	Putting ideas in order	TBI	.038	66	.970
		TAI	-2.697	66	.009
4	Searching specific ideas	TBI	1.567	66	.122
		TAI	-1.338	66	.186
	TBI: Test before Intervention; TAI: *Test after Intervention*				

Table 2 depicts the results independent sample t-test comparing the non-treatment and the treatment groups on each reading strategy as used by the participants on pre-test and post-test. Students were asked comprehension questions to answer through low-level thinking. TBI and TAI are used in the table to indicate *Test before Intervention* and *Test after Intervention*, respectively.

Four themes for each reading strategy that inquired about the students' lower-level thinking were selected and questions were set as per the reading strategy to be used. They designed to check whether the participants in both the treatment and the non-treatment groups managed to answer them. Of the specific questions prepared to examine whether students are empowered to answer questions using lower-level thinking were ideas explicitly stated from the passage (Theme 1: True or False questions, 9 items), fill in the blanks (Theme 2, 2 items), arrange ideas in the order as they appeared in the passage (Theme 3, 2 items), and search for specific information (Theme 4, 8 items). An independent sample test (Table 2) was conducted to specifically address the questions that were prepared to be answered by employing each reading strategy. The results revealed that there was no statistically significant difference between the treatment and non-treatment group students in answering explicitly stated questions, *fill in the blank* questions, and questions that required searching for specific information from the passage (t=-1.360, df =66, p=.178; t=-.288, df=66, p=.774; and t=-1.567, df=66, p=.122). As Table 2 shows, an independent samples t-test of the pretest results reveals that there was no statistically significant difference in reading strategy for putting ideas in order between the non-treatment and treatment group students (t=.038, df=66,

p=.970). However, the t-test result after the intervention reveals that there was a statistically significant difference between the two groups in putting ideas in the order that comes from the reading passage (t = -2.697, df = 66, p = .009). This result contradicts the study conducted by El Hassan, Aldelaziz, and Abdelmajid (2022), which reported that the students in the experimental group answered higher-level thinking questions better than lower-level ones. Therefore, it is necessary to investigate why and how the participants in the treatment group performed better when answering questions that asked students to put ideas in the order they appeared in the passage.

In the post-intervention test, the participants in the non-treatment group performed better on the reading comprehension questions that asked students to put ideas in the order they appeared in the passage. These questions were selected from four themes (reading strategies). However, for the remaining three, the participants in both the treatment and the non-treatment groups showed the same performance in each of the three reading strategies used to answer the post-intervention test' questions included reading comprehension questions explicitly stated, filling in the blanks, and search for specific information in the passage of. This might be because the students could get the answers directly from the reading passage, so they were no forced to engage in higher-level thinking. For example, there were questions that asked student to say true or false according to the information in the passage, fill in the blanks, and search for specific information in the passage. The answers to these questions were directly located in the text. Thus, students might not be required to infer, which is why the students in both groups almost had a similar level in answering the questions at the post-test. However, regarding putting ideas in order according to the passage, the students in the non-treatment group performed well after the intervention. To reach on a valid conclusion about why students in the non-treatment group performed well, further investigation is needed.

Table 3. Comparison of the mean scores of the non-treatment and treatment groups on reading strategies that offer students' a higher-level thinking

S/No	Reading Strategy	No of questions	Treatment group(35)				Non-treatment group (33)			
			BI		AI		BI		AI	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	Answering reference questions	3	1.08	.85	1.62	1.2	1.18	.95	1.15	.93
2	Guessing meanings	8	2.54	1.14	4.02	1.61	2.93	1.67	3.03	1.46
3	Stating main ideas	4	1.48	1.03	2.28	1.20	2.00	1.32	1.36	.78
4	Evaluate the text	1	.42	.50	.82	.38	.51	.50	.24	.43
5	Inferential understanding	2	.40	.65	1.05	.68	.60	.60	.18	.52

Table 3 indicates the mean score comparisons between the treatment and non-treatment groups for questions that require a higher-level thinking. These questions were carefully prepared based on the reading passages and the lessons provided. The questions were prepared to assess whether the students can answer reading comprehension questions that require higher-level thinking. The point was that the students in grade nine levels are expected to infer, summarize, evaluate, and guess the answers to the questions based on

context. The answers to these questions are implicit, i.e., students cannot find them directly in the reading passage. Therefore, students are expected to use reading strategies that help them answer such questions. For this purpose, eighteen questions were prepared to examine whether there was a statistically significant difference in each reading strategy requiring a higher level of thinking between the two groups of students before the intervention and after the intervention. Consequently, questions that require the students to employ a higher-level thinking were prepared: three questions inquired the students to answer reference questions, eight questions probed the students to guess the meanings of new words, four questions questioned the students to state the main ideas of the text, one question inquired the students to evaluate the text, and two questions inquired the students to answer inference questions.

As displayed in the table, the results were also interpreted based on the mean scores and the standard deviation. Accordingly, before the intervention, although the mean scores had a slight difference (non-treatment: M=1.18, 2.93, 2.00, 0.51, 0.68; treatment: M=1.08, 2.54, 1.48, 0.42, 0.40, respectively), the participants had the same level in using the reading strategy use as in the pre-intervention test. However, the post-test results after the intervention revealed a significant difference in mean scores between the treatment and non-treatment groups in the reading strategy used by the participants (non-treatment: M=1.15, 3.03, 1.36, 0.24;0.18; treatment: M=1.62, 4.02, 2.28, 0.82, 1.05). The mean score of the treatment group exceeded that of the non-treatment group by 0.62, 0.24, 0.45, and 0.57, respectively, in the reading strategy used to answer reference questions, guess meanings, state main ideas, evaluate the text, and employ inferential understanding. Regarding SD results of the pretest, the scores deviate ±0.95; ±1.67; ±1.32; ±0.50; and ±0.60 and ±0.85; ±1.14; ±1.03; ±0.50; ±0.65 for the non-treatment and the treatment groups respectively when answering reference questions, guessing meanings, stating main ideas, evaluating the text, and answering questions that required inferential understanding. The SD results for the post-test revealed that the scores for both the treatment and non-treatment groups deviated from the intervention mean scores for the reading strategy used to answer reference questions, guess meanings, state main ideas, evaluate the text, and answer questions inquiring about inferential understanding. The deviations were as follows: ±0.93, ±1.46, ±0.78, ±0.43, ±0.52, ±1.2, ±4.02, ±2.28, ±0.82, and ±1.05. This revealed that the scores in the treatment and non-treatment groups were dispersed equally from the mean scores before and after the intervention. According to the descriptive statistics data, the participants in the treatment group performed better on the post-test than on the pretest. However, it is unclear whether there exists a significant or non-significant difference between the groups based on the mean score difference. To avoid this ambiguity, the researchers conducted a t-test statistical analysis (independent sample-t-test) to determine if there was a statistically significant difference in reading strategies used by the participants.

Table 4 reveals the results of the independent sample t-test conducted for each reading strategy used by the participants to answer reading comprehension questions that require high-level thinking. As shown in Table 4, the t-test results before the intervention revealed no statistically significant difference between the treatment and non-treatment groups in answering reference questions and guessing meaning from context (t=.575, df=66, p=.56; t=1.145, df=66, p=.257). In contrast, the t-test result for the post-test revealed that there was a

statistically significant difference in the mean scores of the non-treatment and treatment groups when answering reference questions and guessing the meanings of new words (t = -2.660, df = 66, p = .010). However, the t-test result indicated that there was no statistically significant difference in the mean scores of the non-treatment and treatment groups in answering reference questions (t = -1.781, df = 66, p = .079).

Table 4. Independent Samples t-test results for each reading strategy

S/No	Reading Strategy	Test	t	Df	Sig. (2-tailed)
1	Answering reference questions	TBI	.575	66	.568
		TAI	-1.781	66	.079
2	Guessing meanings	TBI	1.145	66	.257
		TAI	-2.660	66	.010
3	Stating main ideas	TBI	1.893	66	.063
		TAI	-3.723	66	.000
4	Evaluating the text	TBI	1.188	66	.239
		TAI	-5.909	66	.000
5	Inferential understanding	TBI	1.808	66	.075
		TAI	-5.886	66	.000

Table 4 again reveals that the t-test results for the pre-test (t = 1.893, df = 66, p = .063; t = 1.188, df = 66, p = .239; t = 1.808, df = 66, p = .075) show that there was no statistically significant difference between the treatment and non-treatment groups in the reading strategies used to answer questions inquiring about main ideas, text evaluation, and inferring answers beyond the text. Conversely, the independent sample t-test conducted for the post-test revealed a statistically significant difference in the average mean score calculated for the two groups in reading strategy. This difference was evident when the participants were asked to search for main ideas, evaluate the text, and answer questions that required them to think beyond the lines. These results show that the participants in the treatment group performed well after the intervention. The findings of this study are comparable to those of El Hassan, Abdelaziz, and Abdelmajid (2022). In their study, the experimental group of students who received training in three higher-level thinking skills—understanding, analyzing, and evaluating—showed significant improvement between the pre-test and post-test and outperformed their counterparts in the control group. Thus, it can be deduced that reading strategies inquiring into students' higher-level thinking, as used by the participants, can be improved through explicit instruction in reading strategies. Additionally, the findings are consistent with Lyons's (2017) study, which indicated that providing relevance instructions is an effective way for instructors to promote higher-level comprehension of science texts. In

the post-intervention test, there was no statistically significant difference between the treatment and non-treatment groups in the five themes (reading strategies) selected for questions inquiring about students' high-level thinking, i.e., answering inference questions ($t = -1.781$, $df = 66$, $p = .079$). However, for the remaining four participants in the treatment group, better performance was shown in each reading strategy used to answer reading comprehension questions that asked them to guess the meaning of new words, state main ideas, evaluate the text, and answer inference questions on the post-intervention test. The participants in the treatment group showed better performance in answering reading comprehension questions that require higher-level thinking because they were trained to use reading strategies that require higher-level thinking through explicit reading strategy instruction. Thus, the students in the treatment group were trained on which strategy to use, how to use it, and when and why to use it through explicit reading strategy instruction during the intervention period. According to Westwood (2001), reading comprehension questions that require higher-level thinking involve inferential, critical, and creative comprehension. These questions require higher-order cognitive skills such as analyzing, interpreting, deducing meaning, inferring, summarizing, checking and critiquing, generating ideas, planning, and producing. Fortunately, the participants in the treatment group gained these skills through training during the intervention periods. It is presumed that this is why the participants in the treatment group performed better when answering reading comprehension questions that require higher-level thinking. This might be because the students could not get the answers directly in the reading passage in which readers are expected to engage in higher-level thinking. For example, they must guess the meaning of new words, state main ideas, evaluate the text, and answer inference questions. The answers to these questions are not directly located in the text. In other words, students must think beyond the text to find the answers. This is why participants in the treatment group performed better in the reading comprehension post-test. However, of the five themes, regarding answering reference questions, there were no statistically significant differences in the average mean scores of the treatment and non-treatment groups in the reading comprehension post-test. To reach a valid conclusion, it is necessary to investigate why the participants in the treatment group did not perform well.

Results from interview

Six participants from the treatment group were randomly selected for interviews. The results of the interview analysis showed that the intervention provided ample experience to enhance students' reading strategy use. Accordingly, S1 opined that the intervention helped him to improve his reading strategy for answering reading comprehension questions. For instance, he replied; "The other experience I gained (from the training provided) is that: I understood my reading strategy as I used in reading comprehension questions, especially, those that require higher-level thinking processes.

For example, there were questions that asked me to guess the meaning of new words, state the main ideas, evaluate the reading text, and answer inference questions. S4 also shared his opinion that the training guided him to use a reading strategy to answer reading comprehension questions prepared from a reading passage. Similarly, S5 said that due to the

experience she gained from the training, her achievement in reading comprehension became better when answering reading comprehension questions prepared from a reading passage. She said, "The training helped me understand how to grasp the meaning conveyed through the reading text, especially the questions that seek higher-level thinking to guess the meaning of new words, identify main ideas, and evaluate the reading text based on context".

Conclusions

The findings from both quantitative and qualitative data analyses indicate that the intervention provided to participants in the treatment group guided them to better use reading strategies that require higher-level thinking compared to the participants in the non-treatment group. Specifically, participants in the treatment group outperformed in answering reference questions, guessing the meanings of new words that are prepared from the reading passage, answering questions that inquired students to search for main ideas, evaluate the text, and answer inference question. Hence, the explicit reading strategy instruction accompanied by pre-reading, while-reading, and post-reading activities (which included reading comprehension questions that inquire about both higher- and lower-level thinking) guided the participants in the treatment group to better use the reading strategy that requires higher-level thinking to read and comprehend reading comprehension questions. This implies that the intervention (explicit reading strategy instruction) had a positive effect on the treatment group participants' reading strategies which in turn helped them to better answer high-level thinking questions better than low-level thinking questions. Hence, EFL teachers need to present reading lessons that employ explicit reading strategy instruction and include questions that inquire about both higher- and lower-level thinking to promote students' use of reading strategies.

Furthermore, concerned individuals are expected to conduct research to determine if providing explicit instructions on reading strategies can encourage students to use these strategies more effectively. This would involve using strategies that promote higher-level thinking, such as making inferences, referencing, evaluating the text, guessing the meaning of new words, and identifying the main ideas of the text, rather than strategies that promote lower-level thinking, such as filling in blank spaces, putting ideas in order, and searching for specific information in the reading passage.

Data availability statement

The data used in this study are available from the corresponding author upon reasonable request.

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References

Aghaie, R., & Zhang, L. J. (2012). Effects of explicit instruction in cognitive and metacognitive reading strategies on Iranian EFL students' reading performance and strategy transfer. *Instructional Science, 40* No.6, 1063-1081.

Alderson, C. (2000). *Assessing reading*. New York: Cambridge University Press.

Bedir, H. (2002). Investing and improving ELT students' reading strategies: The proceedings of the first international symposium on modern approaches, methods, and ELT problems (Symposium). Isparta: Turkey.

Brown, H. D. (2007b). *Teaching by principles: An interactive approach to language pedagogy* (3rd edition). White Plains: NY: Pearson Education.

Brown, R. (2017). Comprehension strategies instruction for learners of English: Where we have been, where we are now, where we still might go in S. E. Israeli (Ed.), *Handbook of research on reading comprehension* (pp. 543–567). New York: NY: The Guilford Press.

Chamot, A. (2005). Language learning strategy instruction: Current issues and research. *Annual Review of Applied Linguistics*, volume 25, pp. 112-130.

Chen, K. T., & Chen, S. C. (2015). The use of EFL reading strategies among high school students in Taiwan. *The Reading Matrix: An Int. Online Journal, Volume 15* No. 2, pp. 156-166.

Creswell, J.W. (2014). *Research Design: Qualitative, quantitative, and mixed methods approach (4th edition).* Thousand Oaks: California91320: Sage.

Duffy, T., & Jonnassen, D. (1992). *Constructivist and the technology of instruction: A conversation*. Hillsdale: NJ: Lawrence Erlbaum Associates.

El Hassan, R., Abdelmajid, B., & Abdelaziz Z. (2022). The effect of explicit instruction in critical thinking on higher-order thinking skills in reading comprehension: an experimental study. European *Journal of English Language Teaching,* Volume *5* No.1, pp. 114-126.

Ericsson, K. and Simon, H. (1993).*Protocol Analysis: Verbal reports as data* (revised edition): London: MIT press.

Geleta, D., Tamiru, O. and Sherif, A. (2022). Effects of Explicit Reading Strategy Instruction on Grade 9 Students' Achievement in Reading Comprehension. Hindawi Education Research International, volume 2022, Article ID 7872840, 13 pages. https://doi.org/10.1155/2022/7872840.

Ghaith, G. (2018). English as a second/foreign language reading comprehension: A Framework for Curriculum and Instruction. *TESL Reporter, Volume 50* No. 2, pp. 1-17.

Grabe, W. & Stollear, L. (2011). *Teaching and researching reading* (2nd edition). USA: Routledge.

Grabe, W. (2009). *Reading in a second language: Moving from theory to practice.* Cambridge: Cambridge University Press.

Hedgcock, J., & Ferris, D. (2009). *Teaching readers of English: Students, texts, and contexts*. New York: Routledge.

Li, H. Gan, Z. Leung, S., & An, Z. (2022). The impact of reading strategy instruction on reading comprehension, strategy use, motivation and self-efficacy in Chinese University EFL students. *Sage Open*, January –MARCH 2022, pp. 1-14. Journals sagepub.com/home/sgo. DoI: 10.1177/21582440221086659.

Lyons, H. (2017). Effects of pre-reading instructions on the comprehension of science texts (unpublished Ph.D. dissertation). Columbia University: Columbia.

Ministry of Education (2010). *Report Announced on the strength and weaknesses of Higher Institutions.* Addis Ababa.

Ozek, Y, & Civelek, M. (2006). A study on the use of cognitive reading strategies by ELT students. *The Asian EFL Journal, Professional Teachers Articles,* pp.1-26.

Pearson, D., & Cervetti, G. (2017). The roots of reading comprehension instruction, in S.E. Israel (Ed.) *Handbook of research on reading comprehension* (second edition), (pp. 12-56). New York: NY: The Guilford Press,**.**

Pearson, P. D., & Cervetti, G. N. (2015). Fifty years of reading comprehension theory and practice in P. D. Pearson & E. H. Hiebert (Eds.), *Research-based practices for common core literacy*, New York, Teachers College Press, pp.1-24.

Tavakoli, H., & Koosha, M. (2016). The effects of explicit metacognitive strategy instruction on reading comprehension and self-efficacy beliefs: the case of Iranian university EFL students. *Porta Linguarum*, volume 25, pp. 119-133.

Tindall, E. (2010). A Framework to enhance text comprehension. *Journal of Adult Education Information Series*, Volume 1 No. 39, pp.16-22.

Wang, M. (2009). Effects of metacognitive reading strategy instruction on EFL high school students' reading comprehension, reading strategies awareness and reading motivation (Doctoral dissertation). University of Florida.

Westwood, P. (2001). *Reading and learning difficulties: Approaches to teaching and assessment.* Hong Kong: ACER Press.

Wilson, K. & Lianrui, Y. (2007). A Social constructivist approach to teaching reading: Turning the rhetoric into reality. *CELEA Journal, volume 30*(1).

Yenus Nurie (2018). Conceptualizing reading to learn: Strategy instruction and EFL students' reading comprehension. *International Journal of Curriculum and Instruction, volume 10* (2), pp. 93-117.