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Research Article

Building Strategic Readers: The Effects of Online Training on English Language Comprehension

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ABSTRACT

This study examined the effects of an 8-week online strategy training program on reading comprehension of 8th-grade EFL learners in Türkiye. It also aimed to explore participants' perceptions of the online strategy training program. The program introduced eight strategies across the pre-, while-, and post-reading stages, progressing in complexity. This study used a quasi-experimental, single-group pretest-post test design to investigate its effects. It involved 28 eighth-grade students and a trainer. Data was collected using a variety of methods including pre-, post-, and delayed post-tests, think-aloud protocols, diaries, and interviews. The findings showed significant improvement in reading comprehension, which was sustained over time. Think-aloud protocols revealed the students' metacognitive awareness and adaptability. The diaries identified areas for improvement, such as materials, engagement, and technical challenges. Interviews provided positive feedback while suggesting enhancements, including real-life content, better timing between learning and application. This study underscores the effectiveness of online strategy training in improving reading comprehension and highlights the need for further research to optimize its implementation.

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Statement of Publication Ethics

This study has been approved by the Ethics Committee of Çanakkale Onsekiz Mart University, Graduate School of Education (E-84026528-050.01.04-2200276280, 18.11.2022).

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The authors contributed equally to the article.

Conflict of Interest

There is no conflict of interest.

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Introduction

In the 21st century, the ability to comprehend complex written information is more essential than it has ever been. Today's world, shaped by rapid technological advancement and information overload, demands reading as more than just an academic skill alone. It has become a life skill fundamental to informed citizenship, digital literacy, and lifelong learning (Grabe, 2009). However, many students continue to lag behind. International large-scale assessments, such as the Programme for International Student Assessment (PISA), have repeatedly shown that a considerable number of adolescents struggle with reading comprehension (OECD, 2023). Second and foreign language contexts are where this challenge is most evident. (Almalki & Alzahrani, 2024; Baker et al., 2024; Pinninti, 2024).

In Türkiye, students have difficulty comprehending English texts. These challenges are often attributed to limited vocabulary knowledge (Beceren, 2020; Susoy & Tanyer, 2019), weak grammatical competence (Toprak-Yıldız, 2022), underdeveloped reading strategies (Babayigit, 2019; Tamin, 2019), and a lack of structured, strategy-focused reading instruction (Uçak & Kartal, 2023). Specifically, eighth-grade classrooms often rely heavily on test preparation due to the *Liseye Geçiş Sınavı* (LGS), a high-stakes entrance exam for secondary education. It evaluates students' mastery of core subjects through a rigorous curriculum, including ten skill-based English questions specifically designed to assess students' learning outcomes throughout the year. Success in the LGS is paramount, as it determines students' placement in prestigious high schools, which often correlates with future educational and career opportunities.

Reading comprehension is widely understood as a dynamic and constructive process shaped by the interaction of the reader's prior knowledge, text structure, and reading context (Grabe, 2009; RAND Reading Study Group, 2002). Skilled readers engage with texts strategically by planning, monitoring, and evaluating their understanding (Afflerbach et al., 2008). Instruction that promotes metacognitive awareness has consistently been shown to enhance reading comprehension (McNeil, 2011; Wang, 2023; Zhang & Wu, 2009). Thus, teaching learners how to read, not just what to read, is especially critical for EFL learners in China. These learners often lack implicit language exposure that native speakers typically receive. Thus, exposure to a wide range of genres and text types is essential because it helps build strategy flexibility, which is crucial for navigating increasingly multimodal and complex reading environments (Ghaith & El-Sanyoura, 2019; Hock & Mellard, 2005; Li et al., 2022).

The growing shift toward digital education, accelerated by the COVID-19 pandemic, has brought both challenges and opportunities for reading instruction. One promising solution is strategy training, particularly when interventions are tailored to the specific needs of the target group. Online learning platforms offer new modes of engagement and support, including multimedia resources (Maher et al., 2020), real-time feedback (Pardo et al., 2019), and learner analytics (Akinyi et al., 2024). These affordances make it possible to deliver strategy training programs that are flexible, individualized, and scalable. While several studies have explored the general benefits of online strategy training (Oshima, 2024; Zafarani & Kabgani, 2014), few have focused on younger EFL learners. This is particularly

true for those in the lower secondary educational stage, a critical period in which foundational comprehension skills are still being formed.

To address this gap, the present study implemented an eight-week online reading strategy training program designed specifically for 8th-grade Turkish EFL learners. The training focused on eight strategies: activating prior knowledge, predicting, questioning, inferring, summarizing, visualizing, planning, and monitoring comprehension skills. Instructions were delivered via Google Classroom and Zoom. Each week, the learners participated in two sessions: one that introduced the strategy through explicit instruction and modeling, and another that provided opportunities for guided and independent practice using leveled texts and scaffolding tasks. The instructional model followed a gradual release of responsibility.

This study aimed to explore the impact and perceptions of the training program. Specifically, we investigated (RQ 1) the immediate and sustained effects of online strategy training on students' English reading comprehension scores (RQ 1.1) and the reading strategies students used during training, as reflected in their reading processes (RQ 1.2). In addition, we explored (RQ 2) both students' and trainers' perceptions of the program, including their views on the instruction, strategy use, materials, and overall motivation (RQ 2.1), as well as perceived strengths and areas for improvement (RQ 2.2).

Literature Review

Schema theory provides a foundational understanding of how learners engage with texts, emphasizing the activation of prior knowledge to effectively interpret new information (Gilakjani & Ahmadi, 2011; Kusiak, 2013). Many reading comprehension interventions draw on this theory by explicitly teaching learners to connect new texts to their existing schemata, thereby improving their understanding of texts. For instance, Kusiak (2013) demonstrated that activating prior knowledge through strategy instruction significantly enhances L2 learners' comprehension. This principle underpins the instructional design of the online training program in the current study, which incorporates activating background knowledge as a key strategy for 8th-graders.

Complementing schema theory, metacognitive theory highlights the vital roles of self-awareness and self-regulation in reading comprehension (Wang, 2023). Empirical studies have spanned diverse populations, from adult TESL learners (Majid et al., 2010) to Turkish university students (Razi, 2014). These studies emphasize that explicit instruction in cognitive and metacognitive strategies promotes both strategic reading and the ability to monitor and regulate comprehension. This robust evidence directly informed the design of the online training module used in this study. The module was specifically developed to cultivate both cognitive and metacognitive components tailored to the unique needs of 8th-graders. The integration of these strategies aims to enhance comprehension monitoring, strategic reading, and learner autonomy, particularly among learners with emerging proficiency.

Interactive reading models further illustrate that comprehension is a dynamic, non-linear process that involves the continuous integration of text-driven and knowledge-driven processes (Rumelhart, 2023). Ghafournia and Afghari (2013) emphasized that readers with

strong metacognitive skills are better equipped to select and apply appropriate strategies according to the demands of specific reading tasks. This understanding directly informs the current study's approach, which supports learners' strategic decision-making and adapts instruction to the demands of diverse reading tasks in an online environment.

Among the most widely supported reading strategies are prediction, questioning, summarization, and visualization (Elbro &Buch-Iversen, 2013; Green, 2016; Sua, 2021). These strategies have been shown to improve comprehension and motivate learners. For example, Sua (2021) found that strategic instruction enhanced both comprehension and engagement among ninth-grade students. Similarly, Green (2016) demonstrated that the Question-Answer Relationship (QAR) framework significantly improved third graders' standardized reading test scores, especially for average-level readers. Elbro and Buch-Iversen (2013) further highlighted how activating prior knowledge boosts students' inferencing abilities and overall comprehension. Together, these findings support the selection of strategies used in the online module of the current study. By doing so, the intervention seeks to support both cognitive processing and reading motivation in contexts where strategic reading is not yet widespread.

Research on metacognitive strategy training also provides valuable insights. For example, Tamin (2019) supports the positive effects of visualization and metacognitive strategy training among Turkish learners; however, she emphasized the importance of contextual considerations. Zafarani and Kabgani (2014) showed that explicit summarization instruction significantly enhanced reading comprehension among Iranian university ESP students. This intervention was based on Wormeli's four-stage model: review, evaluation, paraphrasing, and summarization. Their experimental group outperformed the control group on a post-intervention TOEFL test after the intervention. However, as this study focused on university-level learners and relied on TOEFL-based assessments, its applicability to younger or less proficient learners remains unclear. The present study addresses this gap by adapting summarization instruction for 8th graders.

Regarding online reading strategy training in Turkish EFL contexts, Razi (2014) demonstrated the effectiveness of the METARESTRAP program with advanced university students in Türkiye. The findings show significant gains in strategic reading skills. Similarly, Tsai and Talley (2014) confirmed the feasibility and efficacy of strategy instruction delivered via the Moodle content management system. They also noted positive correlations between strategy exercise accuracy and reading performance; however, these findings primarily involved advanced learners, and their generalizability to younger, less proficient 8th graders remains uncertain. Additionally, Razi (2014) did not explore long-term retention or scalability, while Tsai and Talley (2014) faced methodological challenges such as group equivalence concerns.

Promising approaches involving social interaction, such as incorporating L1 into peer collaboration, have been shown to enhance L2 reading comprehension (Almalki & Alzahrani, 2024; Pinninti 2024). Almalki and Alzahrani's (2024) study with Saudi college students, although non-interventional, demonstrated benefits of using L1 during peer collaboration. Pinninti (2024) found that peer collaboration promotes metacognitive awareness among ninth-grade EFL learners in India. When combined with journaling, this

collaboration further encouraged the use of reflective strategies in the learning process. While these findings suggest that social interaction plays a key role in strategy internalization, they largely derive from structured classroom environments, leaving questions about their transferability to more autonomous online contexts, such as in the present study.

The efficacy of explicit reading strategy instruction is well established, and online learning environments offer scalable and interactive platforms for delivering such instruction to learners. Features such as real-time feedback (Huang, 2013; Zhang & Duke, 2008) and multimodal scaffolded activities (Pardede, 2022; Okasha, 2020) enable adaptable and personalized learning (Pinninti, 2024; Rianto, 2021); however, successful implementation requires careful attention to learner needs and instructional intensity. Research shows that real classroom implementation is often inconsistent (Green, 2016) and that accommodating learner diversity remains a challenge (McKeown & Gentilucci, 2007). Moreover, intensive instruction alone is insufficient without alignment with learners' specific comprehension difficulties (Baker et al., 2024). This highlights the necessity of tailored support, especially for younger learners (Hall et al., 2020).

Green (2016) also noted that the lack of standardized intervention durations complicates the identification of the optimal training duration. McKeown and Gentilucci (2007) emphasize the importance of inclusive strategies that accommodate learner heterogeneity, a critical consideration in diverse EFL classrooms. Hall et al. (2020) observed moderate comprehension gains following inference instruction for learners with reading difficulties, reinforcing the value of explicit strategy training coupled with tailored support.

Despite these advances, there remain significant gaps. Most existing research targets university students or controlled settings. Thus, limited attention has been given to online training involving 8th-graders. This group is underrepresented in the Turkish context. Furthermore, learner and teacher perspectives on online strategy training have rarely been explored, restricting insights into its practical challenges and benefits.

Therefore, this study aims to address these gaps by investigating the effects of an eight-week online reading strategy training program on Turkish 8th-grade language learners' reading comprehension. Additionally, it explored participants' perceptions to provide a comprehensive understanding of the implementation outcomes. The intervention focused on explicit instruction in eight strategies grounded in the theoretical frameworks and empirical findings discussed above.

RQ1. What are the effects of an online reading strategy training program on 8th-grade students' English reading comprehension?

1.1. What are the immediate and sustained impacts of the online strategy training program on students' reading comprehension scores?

1.2. What reading comprehension strategies do students use during training, and how are these strategies reflected in their reading processes?

RQ2. How do 8th-grade students and trainers perceive the online reading strategy training program?

2.1. What are the main themes in participants' perceptions of the instructional process, strategy use, motivation, and materials used in the program?

2.2. What do students and trainers identify as the strengths, limitations, and areas for improvement in the online strategy training program?

Methodology

Research Design/Model

This study employed a single-group pretest–posttest design. It investigated the effects of an online reading comprehension strategy training program on 8th-gradersin the Turkish context. This quasi-experimental study adopted a mixed-methods approach. This involved integrating both quantitative and qualitative data collection and analyses (Nunan & Bailey, 2009).

This design was chosen to gain a comprehensive understanding of the program's effectiveness. This was achieved by examining not only the learning outcomes but also the processes underlying those outcomes. Quantitative data were obtained from the pre-, post-, and delayed post-tests. These were used to assess changes in reading comprehension. Qualitative data provided insights into learners' experiences, perceptions, and strategies. These data were gathered from interviews with students and reflection diaries.

The integration of these data types allowed for both complementarity and triangulation, thereby strengthening the overall results. Furthermore, this study aimed to move beyond mere outcome evaluation. It sought to explore how and why the intervention influenced students' reading development in their specific educational context.

Participants

There was a single intact class consisting of 28 8th grade students. Twenty participants were 13 (71.40%), and eight were 14 years old (28.60%). The class comprised 15 females (53.57%) and 13 males (46.43%). According to the Ministry of National Education (MoNE), eighth-grade students are expected to have an A2 level of English proficiency (ELTP, 2018). In fifth grade, they received 11 hours of English instruction per week as a part of Intensive English program. These 11 hours covered core content and language skills delivered by two teachers. In 6th grade, this was reduced to 3 hours per week. For 7th and 8th grades, students received 4 hours per week. Notably, none of the students had previously received formal training in reading comprehension strategies. Prior to participation, all 8th-grade students provided informed consent for their involvement in the study. The trainer also provided an informed consent. Participants were fully informed of the study's purpose, procedures, potential risks and benefits, and their right to withdraw at any time without penalty. Anonymity and confidentiality of all data collected were maintained throughout the study and in the subsequent reporting. All data were securely stored and accessible only to the research team.

Course Design

The intervention of this study was developed through a dynamic iterative process grounded in a comprehensive needs analysis. This initial analysis gathered insights into learners' reading comprehension needs, environmental factors impacting their learning, and teachers' perceptions of their students' challenges. Based on this analysis and subsequent expert feedback, the training program underwent three key revisions to ensure refinement and effectiveness.

The pedagogical framework for the entire intervention was the Gradual Release of Responsibility (GRR) model (Pearson & Gallagher, 1983). This approach emphasizes a progressive shift in the responsibility for strategy use from the trainer to the learners, cultivating greater autonomy in reading comprehension. This model comprises four stages: explicit instruction, modeling, guided practice, and independent application.

The training targeted eight key reading strategies: activating prior knowledge, asking questions, making inferences, predicting, visualizing, planning the reading process, monitoring comprehension, and summarizing texts. These strategies were selected based on the initial needs analysis and alignment with established findings in the literature on reading comprehension.

Instructions were delivered through weekly two-hour online sessions, with each session focusing on a specific strategy. Each two-hour session was structured into four sections, mirroring the GRR stages: explicit instruction of the strategy and modeling by the trainer, guided practice with students, and finally, opportunities for autonomous implementation. To effectively scaffold learning, the strategies were sequenced from simple to complex. The Zoom Platform served as the primary online platform for synchronous sessions, while Google Classroom was the hub for distributing materials and supporting learners throughout the program, supplemented by printed materials for offline practice.

A diverse pool of reading resources was developed to ensure accessibility and cultural relevance. Texts were curated from a wide range of sources, including coursebooks, national and international publications, leveled short stories, language-learning websites, news articles, and scientific texts. The selection was informed by a topic familiarity quiz. Familiarity with a text topic plays a key role in activating background knowledge and supporting the effective use of reading strategies (Urquhart & Weir, 2014). Based on participant preferences and feedback from reviewing EFL teachers, the selected texts were further adapted through simplification and nativization (Alptekin & Erçetin, 2011; Erten & Razi, 2009). Simplification involved adjusting the vocabulary and grammatical structures to align with the expected A2 English proficiency level of 8th-graders. Nativization entails modifying cultural elements, such as replacing unfamiliar place names with local equivalents, to create a more relatable context.

Data Collection and Analysis

Think-Aloud Protocols

The think-aloud protocol investigates learners' cognitive and metacognitive processes during reading by having them verbalize their thoughts in real time (Jääskeläinen, 2012). Thus, this method offers insights into how readers construct meaning, apply strategies, and monitor their comprehension of the text. In this study, this method was employed to examine the reading strategies that students used during an English reading task. A protocol was developed, and the participants were given brief training on how to articulate their thoughts aloud while reading. A reading text appropriate to the students' proficiency level was selected, and three students were randomly chosen to complete the task. As they read and responded to comprehension questions and completed the tasks, the students verbalized their thoughts orally. The process was audio-recorded and transcribed verbatim by the researcher. This allowed for a detailed analysis of the strategies that the participants used while they were reading.

Reading Test (Pre-/Post- and Delayed Post-test)

Recent studies underscore the need for context-specific and purpose-driven reading assessments (Grabe & Yamashita, 2022). In line with this, a tailored test was developed to meet the specific objectives of this study. The test featured various question types, including table completion, true/false statements, gap-filling, identifying main ideas, multiple choice questions, and open-ended questions. This diverse range of question types was chosen to assess different aspects of reading comprehension, such as literal and inferential comprehension.

As this was a tailored test, one method of establishing reliability was test-retest reliability, which measures a test's stability over time. The assessment was administered three times: pre-intervention, post-intervention, and a delayed follow-up. This test was used to measure the immediate and sustained impacts of the online strategy training program

Kuder-Richardson 20 (KR-20) analysis was conducted to evaluate internal consistency. The KR-20 assesses how consistently all items in a test measure a single construct. In this study, our focus was on reading comprehension, and we aimed to ensure that diverse question types aligned with this construct. The KR-20 analysis yielded a coefficient of 0.85, indicating acceptable reliability (Jenkins, 2019). Although the test included various question types, such as table completion, true/false statements, gap filling, identifying main ideas, multiple-choice questions, and open-ended questions, all responses were evaluated using a dichotomous scoring system (1 = correct, 0 = incorrect). This uniform scoring approach makes the KR-20 an appropriate method for assessing internal consistency of the test. For the ordering activity, the Weighted Marking Protocol (Razi, 2005) was employed as an alternative evaluation method. According to this method, the protocol involves inputting answers into a spreadsheet, identifying errors, and calculating scores based on the number of corrections needed to achieve the proper order. This provides a fairer evaluation system that recognizes the varying levels of comprehension.

To further enhance the test's quality, it was piloted with three 8th grade students to assess its clarity and appropriateness. Additionally, two critical friends provided feedback on content and face validity. Based on this feedback, minor revisions were made to improve

item wording, adjust formatting for better readability, and ensure alignment with the learning objectives.

Table 1. Scores of Readability

Readability Analysis		Reading Test					
		Text 1	Text 2	Text 3	Text 4	Text 5	Total
Counts	Words	238	261	405	196	120	1220
	Characters	1001	1266	1919	893	551	5640
	Paragraphs	12	9	6	10	3	40
	Sentences	28	26	37	13	11	115
Words	Sentences per paragraph	3.1	3.7	6.1	3.2	5.5	4.1
	Words per sentence	7.5	8.9	10.9	12.0	10.4	9.7
	Characters per word	4.0	4.4	4.5	4.1	4.5	4.3
Readability	Passive sentences	0.0%	0.0%	0.0%	7.6%	0.0%	0.08%
	Flesch reading ease	77.5	79.2	70.1	76.0	68.2	74.3
	Flesch-Kincaid grade level	4.3	4.4	6.1	5.6	6.3	5.3

Readability analysis was conducted on the reading passages using measures such as word count, sentence length, Flesch Reading Ease, and Flesch-Kincaid Grade Level. This analysis ensured that the texts were appropriate for its target audience. Specifically, Text 1-2-4 and 5 were highly readable. Text 3 was more complex than the others. Moreover, Text 3 and 4 contained longer sentences than the other texts.

Diaries

Diaries offer insights into individual experiences and perspectives that may not be easily captured through other research methods (Mackey & Gass, 2015). In this study, three types of diary entries were collected during the training. A set of guiding questions was developed for each participant group to ensure the effectiveness of diary entries. These questions were then reviewed and refined by two experts in English Language Teaching (ELT) to ensure their alignment with the research objectives and clarity for the participants (Appendix A).

First, the researcher maintained a diary to document the research process. The students kept diaries to reflect on their learning journeys, including key takeaways, memorable moments, challenges faced, self-assessments, and feedback on the trainer's instructions and training materials to refine the process. The trainer diaries documented his perspective on the training process, including its perceived effectiveness, challenges encountered, successes, and areas for improvement. The qualitative data from these diaries were analyzed using MAXQDA's single-case model code hierarchy. This specific visual representation tool in qualitative data analysis allows researchers to graphically display the thematic structure that emerges from the coding of a single unit of analysis, such as an individual

participant's diary. This model organizes codes in a hierarchical, top-down fashion, revealing the relationships between broader themes and more specific sub-themes as they appear within the selected case. It thus provides a clear, structured overview of the qualitative data's analytical framework as applied to each diary entry.

Semi-structured interviews

Semi-structured interviews were conducted with the trainer and three randomly selected student participants following the completion of the intervention to gain in-depth insights into the participants' experiences and perceptions.

The purpose of these interviews was twofold: (1) to evaluate the perceived effectiveness of the training program from both learners' and trainers' perspectives, and (2) to identify specific areas for future improvement. The interviews aimed to elicit feedback on the various aspects of the program. Specifically, they explored the clarity and practicality of the strategies, appropriateness of the materials and pacing, quality of instruction and engagement, and training's applicability to students' academic lives. An interview protocol was developed for the trainer and student participants to ensure that each group meaningfully reflected their roles and experiences in the program.

Key areas explored in student interviews included overall impressions of the training, contribution to understanding reading comprehension strategies, usefulness and applicability of specific strategies, quality of training materials and delivery methods, engagement with the online learning environment, application of strategies in academic or personal contexts, suggestions for improvement. The trainer interview focused on the effectiveness of each strategy taught, sequencing and delivery of strategies, observations of student engagement and learning outcomes, suggestions for improving content, delivery, and instructional design (See Appendix B)

All interviews were conducted face-to-face at the school after regular school hours and were scheduled based on the availability of the participants. Each interview lasted approximately 25-30 minutes. The interviews were conducted by the primary researcher, who had established a rapport with the participants, contributing to an open and comfortable interview atmosphere.

Various strategies have been employed to enhance the trustworthiness of qualitative findings to improve their credibility, dependability, and confirmability. All interviews were audio-recorded with the participants' permission and transcribed verbatim by the primary researcher and two critical friends who were experienced in transcription and familiar with the research context. For transcription accuracy and consistency, portions of each transcript were randomly selected and cross-checked using transcribers, discrepancies were identified and resolved collaboratively, and transcripts were returned to the participants for member checking.

Procedure

The procedures undertaken in this research are presented below, explicitly linking each step to its corresponding research questions.

Table 2. Steps of the study

Step	Description	Research Question addressed
1.Think-Aloud Protocol Implementation	The participants were trained to verbalize their thoughts while reading. The sessions were recorded and transcribed for analysis.	RQ 1.2
2.Pre-Test Administration	A custom reading comprehension test was administered to establish baseline proficiency.	RQ 1.1
3.Online Reading Strategy Training	Training using the GRR model	Intervention for RQ1.1 & 1.2
4.Data Collection During Training	Diaries kept by the trainer, researcher and students documented their experiences	RQ1.2, RQ2.1, RQ2.2

Table 2 continued

5.Post-Test Administration	The same reading comprehension test was re-administered to measure progress.	RQ 1.1
6. Delayed Post-Test	The experiment was conducted five weeks after training to assess the long-term retention of reading strategies.	RQ 1.1
7.Semi-Structured Interviews	Interviews were conducted with the trainer and three students. Reflections on the learning experience and training effectiveness. Transcriptions were validated by critical friends and participants.	RQ2.1, RQ2.2

Qualitative and quantitative data were systematically collected and analyzed to align with the study's research objectives. Quantitative data were examined using SPSS 24, and statistical methods were applied to identify significant differences in reading comprehension scores. For qualitative analysis, we used Braun and Clarke's (2006) six-phase thematic framework: (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing a report. Interviews and think-aloud sessions were transcribed and subjected to an inductive open coding method. Early codes emerged without pre-set categories and were iteratively refined into overarching themes. MAXQDA software supported the systematic organization, visualization, and interpretation of qualitative data. The resulting themes were interpreted considering the research questions, illuminating key aspects of the participants' experiences and strategy use. This combined approach offers a comprehensive understanding of reading comprehension strategies in a language-learning context.

Results

Quantitative and qualitative data converged to address the two primary research questions concerning the effects and perceptions of the online reading strategy training on 8th-grade students' English reading comprehension.

RQ1: Effects of Online Strategy Training on English Reading Comprehension

The effects of the online reading strategy training program on students' English reading comprehension scores were assessed.

1.1. Immediate and Sustained Impacts on Reading Comprehension Scores

In this study, reading comprehension was assessed three times using the same test: before the intervention, immediately after, and five weeks later.

Table 3. Descriptive statistics of pilot group (*N*=28)

	M	Median	Mode	Sd	Z scores	
					z-skewness	z-kurtosis
Pre-test	34.32	28.00	11.00	21.04	0.90	1.10
Post-test	37.67	32.00	12.00	21.26	1.02	0.70
Delayed post-test	45.64	39.00	32.00	19.41	0.79	1.20

The descriptive statistics in Table 3 indicated an increase in mean scores from the pre-test to the post-test and further improvement in the delayed post-test. Although the standard deviation decreased slightly, the z-skewness and z-kurtosis coefficients remained within the acceptable range of ±1.96, suggesting a normal score distribution (Field, 2009). This normality allowed the use of parametric tests in subsequent analyses.

Table 4. Multivariate tests

Effect	Value	F	Hypothesis df	Error df	p	η^2_p
Wilks' Λ	.442	16.43	2.00	26.00	.000	.558

Repeated Measures ANOVA was conducted to determine whether there were significant differences between the pre-test, post-test, and delayed post-test scores. The results revealed a significant difference between the repeated measures [Wilks' $\Lambda = .442$, $F(2, 26) = 16.43$, $p < .001$, $\eta^2_p = .558$], indicating a significant improvement in reading comprehension scores over time.

Table 5. The difference between measurements

I (test)	J(test)	Mean Difference (I-J)	Std. Error	Sig. 95%	95% Confidence Interval for Difference	
					Lower Bound	*Upper Bound*
Pre-test	Post-test	-3.35	2.13	.383	-8.80	-13.71
	Delayed post-test	-11.32	1.95	.000	2.09	2.20
Post-test	Pre-test	3.35	2.13	.383	-16.31	-6.33
	Delayed post-test	-7.96	2.25	.005	6.33	16.31
Delayed post-test	Pre-test	11.32	1.95	.000	-2.09	2.20
	Post-test	7.96	2.25	.005	8.80	13.71

No significant difference was found between the pre-test and post-test scores ($p = .383$). A statistically significant difference was found between the pre-test and delayed post-test scores ($p < .001$). A statistically significant difference was found between the post-test and delayed post-test scores ($p = .005$).

These findings suggest that while the immediate impact of the training program on reading comprehension may not be significant, there was a significant improvement in reading comprehension scores in the delayed post-test, indicating a sustained learning effect.

1.2. Reading Comprehension Strategies Used and Their Reflection in Reading Processes

Analysis of the think-aloud protocols revealed a rich variety of reading comprehension strategies employed during the tasks. These strategies included questioning, making prediction, bottom-up decoding, inferencing, text referencing, translation, logical reasoning, elimination, critical thinking, and self-monitoring.

Each student demonstrated a distinct strategic profile. For instance, Student 11 consistently relied on logical reasoning to navigate comprehension tasks, whereas Student 15 favored prediction and critical thinking to interpret meaning and anticipate the content. Student 12 combined multiple strategies such as reading aloud, word-by-word translation, and visual cues to construct meaning.

An excerpt from Student 12's think-aloud protocol illustrates this strategic interplay while grappling with a T/F item:
Statement: *"Tom does one thing that teenagers don't normally do."*

"Hmm... what's something that teenagers do not usually do? Let me think. Teenagers say they do not like doing homework... but Tom does his homework, right? Therefore, this may be the case. But... I'm not sure. Is that really unusual?"

(Later, returning to the same item)

"Okay… He goes to school, does his homework, meets his friends, enjoys doing sports. All of these seem pretty normal for a teenager, right?"

This example highlighted the student's use of questioning, inferencing, and self-monitoring. It also indicated her metacognitive struggle to reconcile prior knowledge with textual information when the answer isn't explicitly provided. Her willingness to revisit and reassess the items reflected an iterative and reflective approach to meaning making. A notable pattern across participants was their flexibility in adapting their strategies when faced with comprehension challenges. Students shifted between approaches and repeating segments, asking self-directed questions, and referring to the text to clarify ambiguities and restore understanding. This dynamic use of strategies indicated growing metacognitive awareness and the ability to self-regulate one's comprehension.

RQ2: Perceptions of Online Strategy Training Program

Perceptions of the online reading strategy training program were explored from the perspectives of 8th-graders and the trainer. These insights were gathered through diary entries and semi-structured interviews.

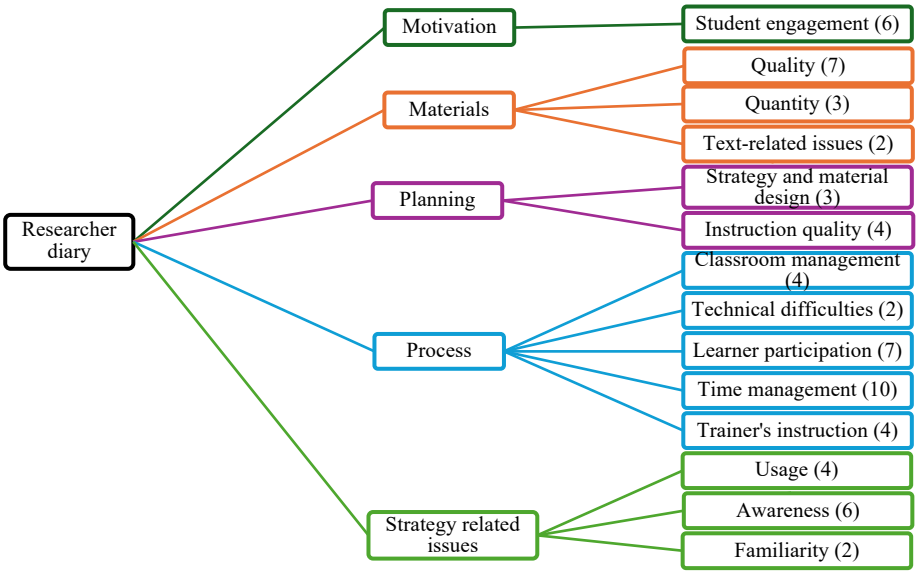
2.1. Main Themes in Participants' Perceptions Regarding Program Components

Thematic analysis of the diary entries, conducted using MAXQDA, revealed several key themes influencing participants' experiences with the training program.

Figure 1. Code system of diaries

An analysis of the diaries from the researcher, the trainer, and learners identified several key factors influencing the training program. The most frequently noted category was process (28%), which included aspects such as learner participation, classroom management, technical challenges, time management issues, and trainer instructions. Strategy use emerged as another significant theme (25%), encompassing participants' familiarity with, awareness of, and application of the strategies introduced during the program. Motivation (21%) also played a vital role, encompassing students' perceived usefulness and relevance, and overall engagement with training. The training materials accounted for 20% of the findings, focusing on quantity, quality, and text-related issues such as font size, style, readability, and participants' interest in the topics. Finally, planning (6%) was less prominent but still notable, with attention given to lesson planning, instructional strategies, and material design.

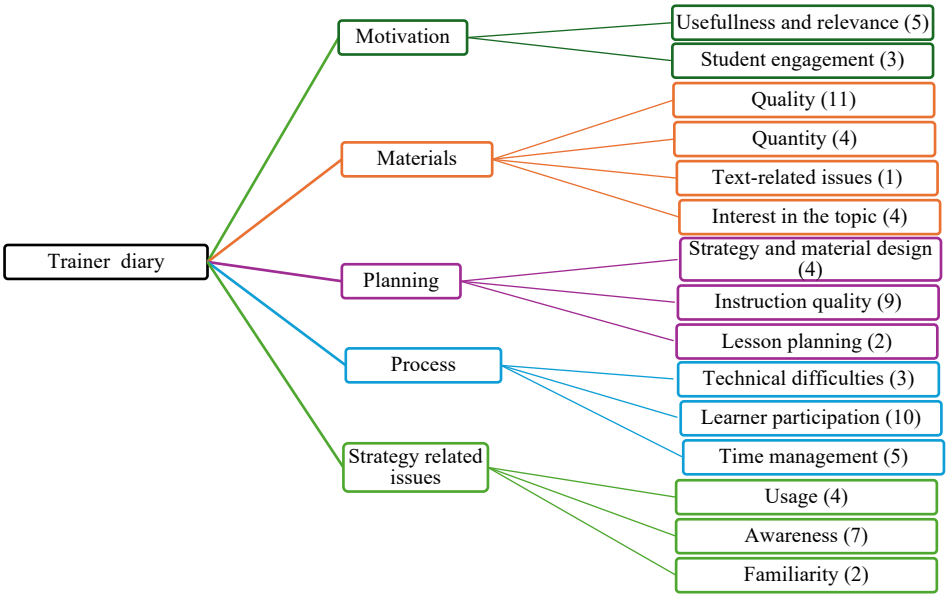
Figure 2. Single-case model code hierarchy for the researcher diary



The researcher's diary entries primarily focused on two broad categories: the overall process of online training and strategy-related issues. Reflections included observations on learner engagement and participation, technical challenges such as intermittent Internet connectivity and occasional Smartboard problems, and time management concerns. For example, the researcher noted that some students experienced connection problems that disrupted their focus and participation during the sessions. Additionally, the pacing of lessons was occasionally too fast, especially during the video presentations of question

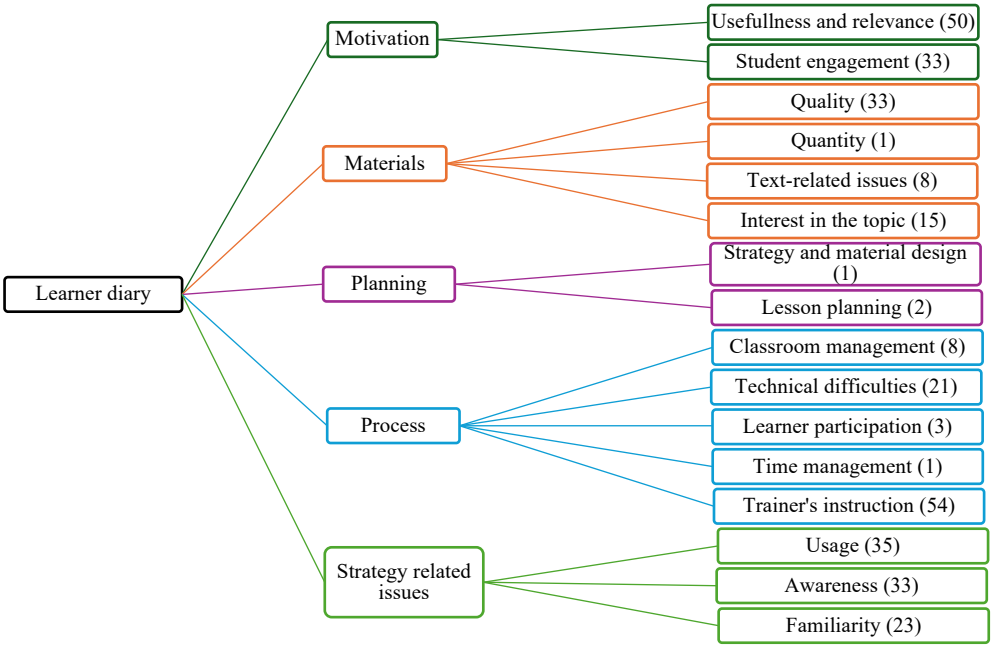
words, which affected comprehension. The researcher also highlighted the need to allow more time for the autonomous practice of reading strategies, as some participants required further support in applying strategies independently.

Figure 3. Single-case model code hierarchy for the trainer diary



The trainer's diary served as a comprehensive record, primarily emphasizing the training planning process. Beyond planning, it offered valuable reflections across various dimensions, including the overall instructional process, the effectiveness and sufficiency of the materials used, and specific observations on strategy-related issues. This multifaceted perspective was crucial for tracking and commenting on the intervention's implementation. For instance, in Week 5, the trainer reflected that while the instructions were generally perceived as sufficient and clear, some of the terminology used in the materials appeared to be unfamiliar or confusing to the learners.

Figure 4. Single-case model code hierarchy for students' diary



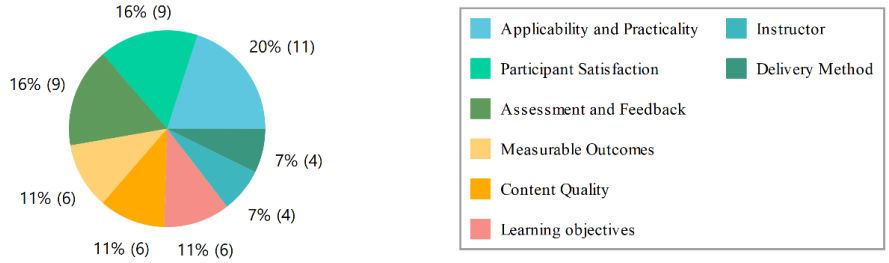
Students' diary entries heavily emphasized motivation, which emerged as a major concern for learners. Within this theme, the usefulness and relevance of the strategies introduced each week were highlighted 50 times, indicating a strong perceived connection between the program content and students' practical needs. Their engagement with the program was noted 33 times, suggesting that perceived utility directly fostered active participation.

Regarding materials, students provided overwhelmingly positive feedback on their quality (33 mentions), describing them as effective and helpful for learning. Interestingly, they indicated significantly less concern about the quantity of materials (only one mention), implying that quality superseded sheer volume. However, students did raise some text-related issues (eight mentions), indicating a preference for texts that were either easier to comprehend or more readily understandable, hinting at challenges with text complexity or unfamiliar vocabulary within the materials.

2.2. Identified Strengths, Limitations, and Areas for Improvement from Interviews

Semi-structured interviews were conducted with three randomly selected students and the trainer, with data analyzed using MAXQDA. A detailed coding framework was used to analyze the data.

Figure 5. Code system of semi-structured interviews



Participants consistently emphasized the program's applicability and practicality, comprising 20% of the coded data. Students P17 and P26, for instance, commented that the strategies introduced could be applied not only in classroom contexts but also in daily life. The trainer also reflected that students were developing greater awareness of how to comprehend texts more effectively. P17 mentioned that the strategies were generally applicable across academic and everyday settings.

Similarly, 16% of the coded responses focused on the adequacy of assessment methods and feedback. Students appreciated the instructor's clarity, with P17 describing the teacher as caring, engaging, and clear in explanation, and noting that these qualities had a positive effect on their understanding. P26 also affirmed that the instructor's way of speaking matched their level and made lessons more comprehensible.

Overall satisfaction with the training was high, also accounting for 16% of the data. P17 noted that their reading comprehension scores in English had improved as a result of the training. P26 found the program highly useful and reported that they could now comprehend simple texts more easily. Participants acknowledged that the program achieved

its objectives (11%) and provided content that supported reading comprehension effectively (11%). P26 emphasized their improved ability to understand texts and expressed enjoyment in engaging with the materials. The trainer likewise found all strategies beneficial for students' future reading, believing they contributed meaningfully to learners' development.

Despite these strengths, 7% of the coded data pointed to some limitations, particularly in instructional delivery and learner engagement. These issues were commonly attributed to technological difficulties and lapses in sustained attention, which were frequently referenced in trainer diaries through mentions of internet or connection problems.

Further insights emerged from individual interviews with students P17, P25, and P26. All three affirmed the program's effectiveness, particularly its specific strategies. P17 and P25 both emphasized the value of the prediction strategy. P17 explained that they had started using visual elements more actively before reading, while P25 described relying on known vocabulary to make predictions. P25 also suggested that the question-generation strategy might be more impactful if introduced later in the program, believing its retention would be improved following exposure to foundational strategies. Additionally, P25 proposed the inclusion of more vocabulary-focused tasks to reinforce lexical development.

Motivation was closely linked to the relevance of the materials. P17 felt that real-life topics and interest-based texts increased both engagement and retention of strategies. Regarding the materials, P17 evaluated the difficulty level as appropriate for learners with basic English proficiency and believed the content was well-aligned with the strategies. P26 found the materials sufficient, instructive, and suited to their level, particularly appreciating the visuals that aided comprehension and added enjoyment. However, P25 noted that some of the comprehension questions were challenging for their proficiency level.

All three students valued the instructor's teaching style, frequently describing it as understandable, sincere, and motivating. P17 believed that without the teacher's clear and humorous explanations, students might not have been as attentive. P26 remarked on the positive classroom atmosphere fostered by humor and occasional jokes. They also recommended extending the program's duration by one or two weeks, arguing that this would allow more time for reinforcement—especially through additional practice with comprehension questions. This view resonated with diary entries that often referenced time constraints and the need for more exam-oriented preparation, particularly for Türkiye's national LGS exam. P26 also expressed a preference for face-to-face instruction over online delivery, perceiving it as more effective.

Trainer interview data supported many of these findings. The trainer emphasized that while all strategies were useful, visualization and summarizing were particularly effective and commonly used by students. He likened the strategies to interdependent components of a puzzle, where each played an essential role. Although generally satisfied with the structure of the program, he recommended modifying the schedule to allow students more opportunities for autonomous implementation of strategies. He believed that this change would enable learners to practice more effectively and engage more deeply with texts on a personal level (personal interview, April 27, 2023).

In summary, while the program was widely perceived as effective, well-organized, and pedagogically relevant, both students and the trainer recommended refinements in terms of session timing, content personalization, and strategy sequencing. These enhancements were especially intended to better accommodate learner diversity, reduce exam-related stress, and mitigate technological constraints.

Discussion

This study investigated the effects of an online reading strategy training program on 8th-grade language learners' reading comprehension and explored participants' perceptions of the intervention. The findings indicated a significant, delayed improvement in reading comprehension scores. Additionally, qualitative insights were gained into students' strategy use and overall program experiences. These results suggested that structured online strategy instruction can meaningfully support strategic reading development in lower secondary EFL contexts when designed to promote gradual internalization and autonomous application.

Effects of the Online Strategy Training on Reading Comprehension (RQ1.1)

The quantitative findings indicated measurable gains in comprehension, although these improvements were delayed rather than immediate. This aligns with Zhang and Wu (2009) and Ghaith and El-Sanyoura (2019), who reported positive impacts of strategy training on reading performance. However, the delayed effect observed in this study supports the notion that strategy acquisition is a transformative and gradual process. As noted by Afflerbach et al. (2008), the shift from strategy to skill involves practice and repetition. This finding is also consistent with the work of Ahmadi et al. (2013) and Albazi and Shukri (2016), both of whom emphasized the protracted nature of strategy development in L2 contexts. Indeed, strategy acquisition is a developmental process requiring time, repetition, and reinforcement to move from declarative to procedural and conditional knowledge. The GRR framework was central to the delayed but lasting improvement observed in students' reading comprehension. This scaffolded approach progresses from explicit instruction to modeling to guided practice, and finally to independent application. Through this structure, students received the support they needed to gradually build confidence and use strategies for better comprehension independently.

At first, learning new strategies and adapting to an online format likely increased students' cognitive load. This may explain why comprehension gains were not immediate. However, as they progressed through the guided and independent practice stages, the strategies became more integrated and automatic. Promoting metacognitive regulation and self-regulated learning, this process is essential for the transfer and long-term use of strategic reading (Oxford, 2011; Zimmerman & Schunk, 2011). Thus, the delayed improvements likely reflect the time students needed to internalize and flexibly apply the strategies. They transitioned from relying on teacher direction to applying strategies independently. Moreover, the online format itself, with its inherent demand for autonomy, may have reinforced self-monitoring and goal-setting behaviors, further supporting long-term strategy use.

While the online format introduced challenges such as varying levels of digital literacy and unequal access to technology, it also offered important opportunities. One key advantage

was the potential for structured and consistent delivery of reading instruction. Research shows that online platforms can promote learner autonomy (Huang, 2013; Urlaub, 2013). They also allow space for individualized strategy use and self-paced learning (Oshima, 2024).

However, the success of such programs depends heavily on several factors. These include explicit strategy instruction, multimodal support, and strong scaffolding to maintain engagement and meet diverse learner needs (Habók et al., 2024; Oshima, 2024). Students benefit from support tools like annotation, highlighting, and dictionary features (Huang, 2013). Teacher guidance also plays a vital role. This is especially true when using gestures and visual cues, which can improve attention and comprehension in online settings (Oshima, 2024). In addition, nurturing positive attitudes toward language arts is essential. Such attitudes significantly influence students' use of reading strategies and their overall achievement (Habók et al., 2024). Effective online reading instruction also requires accessible and relevant materials. Teachers must be adaptable to meet learners' linguistic, cognitive, and emotional needs (Swanepoel et al., 2019).

In sum, online instruction can be a powerful tool for developing reading strategies. However, its success depends on pedagogical design, teacher support, and attention to individual learner differences.

Strategy Use and Reading Processes (RQ1.2)

Qualitative data from think-aloud protocols and student diaries offered valuable insights into how learners engaged with the eight targeted reading strategies across the pre-, during, and post-reading stages. The findings suggest that instruction was not only delivered but also internalized and actively applied in meaningful ways, aligning with research indicating that explicit strategy instruction promotes active use rather than mere exposure (Tsai & Talley, 2014).

Students frequently cited visualization, questioning, and monitoring comprehension as particularly beneficial. Visualization enabled students to construct mental models, which helped compensate for the lack of nonverbal cues in the online environment. This outcome is supported by Park (2012), who highlighted visualization as a bridge between comprehension and critical engagement with text. Students' questioning behavior evolved from simple recall to more self-directed and evaluative inquiries. This echoes Liu's (2021) finding that effective questioning, especially "what" and "why" types, can enhance comprehension when aligned with learners' cognitive readiness and attitudes toward strategy use. Monitoring comprehension involves learners recognizing when they misunderstand a portion of the text and taking active steps to repair their understanding, reflecting improved metacognitive control. This aligns with the findings of Temelman-Yogev et al. (2020), who found that such monitoring is both a skill and a trait that can be strengthened with sufficient proficiency and instructional support. Moreover, as shown by Dewitz and Graves (2024), explicit instruction and gradual scaffolding are crucial for internalizing such strategic behavior. This was evident in our data, as stronger readers demonstrated flexible use of multiple strategies—predicting, inferring, and evaluating—

depending on text demands, a pattern characteristic of proficient readers who strategically adjust their approaches based on text demands (Grabe & Yamashita, 2022).

Importantly, this transformation was not uniform among all the students. Yang (2006) and Liu (2021) caution that mere exposure to strategies is insufficient; transfer requires careful consideration of learner readiness, motivation, and perceptions. Some less proficient students relied heavily on prompts or used strategies mechanically, indicating the need for sustained support.

Overall, these findings reinforce the value of structured and explicit strategy instruction in EFL contexts but also highlight the importance of integrating critical engagement (Park, 2012), metacognitive development (Temelman-Yogev et al., 2020), and individual learner differences into instructional design to promote durable and transferable strategy use.

Participants' Perceptions of the Instructional Process, Materials, and Motivation (RQ2.1)

Students and the trainer generally expressed positive attitudes toward the online strategy training program. Learners found the sessions engaging and enjoyable. This was especially true when they worked with authentic materials such as news articles and short stories. These findings align with earlier research that highlights the motivational value of authenticity in language instruction (Kung, 2019; Namaziandost et al., 2022). In terms of motivation, the materials' authenticity likely boosted students' feelings of relevance and autonomy, which are crucial for cultivating intrinsic motivation (Ryan & Deci, 2017).

The positive responses also reflect the principles of schema theory. By incorporating familiar themes and culturally relevant content, the program supported learners in activating prior knowledge. This activation not only enhanced comprehension but also deepened engagement, as students could connect new information to their existing mental frameworks (Gilakjani & Ahmadi, 2011; Kusiak, 2013). For instance, in Week 4, one student noted in their diary that they were able to understand the reading more easily because the topic—school rules—was familiar to them and mirrored the rules in their own school. This kind of familiarity appeared to reduce cognitive load and promote more confident participation. However, responses varied: some students reported struggling with texts when they lacked relevant background knowledge or encountered unfamiliar vocabulary, highlighting the need for careful selection and scaffolding of authentic materials. This issue, also noted by Crossley et al. (2014), was addressed by simplifying or nativizing certain texts. These adaptations helped reduce cognitive load and supported strategy use (Alptekin & Erçetin, 2011; Erten & Razi, 2009). Still, this raises a pedagogical tension: while simplification aids comprehension, over-simplifying may limit learners' exposure to authentic linguistic forms and reduce long-term gains in language development. The challenge, therefore, is finding the right balance between making texts accessible and maintaining linguistic authenticity.

As learners progressed, they began to demonstrate increased awareness of how text difficulty affected their comprehension and strategy use. Many identified specific challenges, such as unfamiliar vocabulary or topic areas, and described how they adapted their reading strategies in response. For example, in Week 5, one student noted in their diary

that when encountering a particularly difficult story, they relied on visual clues and recalled key question words to support understanding. These kinds of adjustments indicate the development of self-regulation skills, a core component of metacognitive control. Similar outcomes have been documented in previous research by Razi (2014) and Majid et al. (2010), both of whom emphasized the value of explicit strategy instruction in enhancing metacognitive awareness. The structured design of the training program played a critical role in supporting these developments in student learning. It effectively equipped students with both cognitive strategies, such as summarizing and inferring, and metacognitive strategies, including planning and monitoring comprehension (Dermitzaki, 2025; Arabmofrad et al., 2021). This dual-layered support was crucial, helping students not only understand *what* to do but also *when* and *why* to apply specific strategies for autonomous reading (Wu et al., 2023). As a direct result of this targeted instruction, students were increasingly able to manage reading challenges independently, which is a central goal in L2 reading instruction (Andrés, 2020; Wu et al., 2023).

The emphasis on topic familiarity also connects to the interactive reading model. This model views comprehension as a dynamic interaction between the text and the reader's prior knowledge (Rumelhart, 2023). Materials that aligned with students' interests or background knowledge supported more meaningful interaction with texts. As a result, students were better able to construct meaning and approach reading with greater confidence. For instance, in Week 3, one student reflected that having prior knowledge about the topic allowed them to read more quickly and feel more certain about his responses. This observation supports findings by Ghafournia and Afghari (2013), who demonstrated that readers with stronger metacognitive skills tend to adapt their strategies more effectively in response to familiar content. The ability to shift strategies flexibly, as demonstrated by several learners, indicates emerging reading proficiency and growing confidence—both key outcomes of effective strategy instruction.

Perceived Strengths and Limitations of the Program (RQ2.2)

Participants consistently praised the program's structured and scaffolded approach to reading strategy instruction, which aligns with research emphasizing that explicit strategy teaching enhances metacognitive awareness and reading comprehension (Magnusson et al., 2019). The trainer also highlighted the effectiveness of visualization and summarizing, reinforcing findings that identify these as particularly beneficial strategies for EFL learners (Tamin, 2019). Students similarly reported that prediction was especially helpful for anticipating text content and guiding comprehension. These self-reported gains are consistent with earlier research on the benefits of explicit strategy instruction (Magnusson et al., 2019; Tamin, 2019).

Moreover, participants commented on the instructor's pedagogical style, describing him as caring, humorous, and clear in his explanations, and noted that his communication style was well-suited to their level of understanding. The aforementioned characteristics were identified as contributing factors in sustaining learner engagement, a pivotal consideration within the domain of online learning environments (Mihara, 2011).The program's use of authentic and culturally relevant materials further supported

comprehension by activating prior knowledge, in line with schema theory and research advocating for meaningful, contextually grounded content to enhance learner engagement (Gilakjani & Ahmadi, 2011; Kung, 2019; Yan & Kim, 2023).

However, several critical limitations emerged that tempered the program's overall effectiveness. One major concern was the heterogeneity of learners' proficiency levels and background knowledge, which influenced both engagement and comprehension. This challenge reflects Kung's (2019) findings on the importance of accommodating individual learner differences in strategy instruction. Participants pointed to a lack of differentiation in the materials. P25, for instance, indicated that some questions exceeded their proficiency level, while P17 felt the materials were more appropriate for students with prior knowledge of English. These reflections highlight a significant shortcoming, as effective strategy instruction requires flexible adaptation to meet diverse learner needs (Magnusson et al., 2019). Without such differentiation, lower-proficiency students may face disengagement or cognitive overload. The program's approach to balancing authenticity and accessibility also encountered challenges. Although simplifying texts helped reduce cognitive load (Alptekin & Erçetin, 2011), this simplification may have limited learners' exposure to the rich language input necessary for long-term L2 development (Erten & Razi, 2009). This tension between comprehensibility and authenticity is well documented in EFL instruction (Crossley et al., 2014). Additionally, the lack of focused vocabulary instruction was identified as a significant gap; for example, P25 recommended that the program includes more activities centered on vocabulary development. Considering the foundational role of vocabulary in reading comprehension, its omission represents a missed opportunity to enhance learners' language proficiency alongside their strategy use (Ghavamnia & Kashkouli, 2022; Swanepoel et al., 2019).Technical challenges such as internet connectivity problems and unfamiliarity with online platforms were frequently cited by students and the trainer, consistent with known barriers in online education (Mihara, 2011). Importantly, these issues disproportionately affect learners from disadvantaged backgrounds, raising concerns about digital equity and access (Ismail et al., 2018). The program lacked sufficient technical support or contingency plans, which likely limited participation and learning outcomes.

Participants also pointed out issues related to the timing and pacing of the program. The trainer recommended reducing the amount of reading content and spreading it out over a longer period, allowing students more opportunities for autonomous strategy implementation. This suggestion highlights the importance of supporting learner self-regulation and independent practice—both essential for effective strategy internalization (Oxford, 2011; Yan & Kim, 2023). Students also expressed a desire for a longer program duration to better consolidate their learning. For instance, P26 indicated that having an additional one or two weeks would have allowed for more reinforcement, particularly in preparation for high-stakes exams. These observations suggest a potential mismatch between the program's emphasis on general reading comprehension development and students' exam-oriented motivations, which may influence their engagement and the transfer of skills (Ghavamnia & Kashkouli, 2022). Finally, although the online format improved accessibility, some students expressed a preference for face-to-face or blended learning

models to better address their social and instructional needs. For example, P26 suggested that the program would have been more effective if delivered in person, pointing to limitations of fully online instruction such as reduced opportunities for real-time interaction and immediate feedback. These elements are critical for maintaining learner motivation and supporting effective learning (Mihara, 2011).

In summary, the program's strengths lie in its structured, explicit strategy instruction, engaging instructor, and use of authentic materials, all supported by relevant theoretical frameworks and empirical evidence. However, critical shortcomings in differentiation, vocabulary support, pacing, sequencing, technical infrastructure, and delivery modality limit its impact

Suggestions

The findings of this study offer several pedagogical implications for educators and program developers aiming to enhance reading comprehension among language learners.

The results strongly suggest that structured online strategy training can effectively improve students' overall reading comprehension. Developing such programs that incorporate key pedagogical frameworks, such as the GRR model, is highly beneficial.

To address varying proficiency levels, initial diagnostic assessments should be implemented to tailor materials. This approach would allow for targeted scaffolding for struggling learners while simultaneously offering extension activities for advanced students. Incorporating modular units, flexible scheduling, and robust technological support can significantly enhance program accessibility and effectiveness in diverse online learning environments.

Utilizing multimedia resources such as videos, podcasts, infographics caters to diverse learning styles and boosts student engagement. The integration of culturally relevant materials and explicit teaching of cultural references is crucial for cultivating richer engagement and facilitating deeper comprehension. Collaborative learning activities, such as group projects and peer discussions, should be leveraged to promote peer-to-peer learning and higher-order thinking.

Educators should explicitly teach reading strategies through modeling and guided practice and promote metacognitive awareness. Utilizing self-assessment tools, such as rubrics specifically designed for reading strategies, can empower students to track their progress. This, in turn, helps them cultivate self-regulated learning. Crucially, both teacher and student assessment literacy are vital to this process.

A balanced approach to text selection, combining authentic and simplified texts, can cater to diverse proficiency levels and provide appropriate challenges for learners. Furthermore, educators should emphasize the transfer of engagement into more comprehensive understanding, facilitated by explicit instruction and supportive practice. Involving students directly in text selection can increase their motivation and make learning more meaningful.

Teacher training is paramount to maximize the effectiveness of strategy instruction. Expanding teachers' strategy repertoires through targeted training sessions and establishing

professional learning communities for experience sharing can significantly enhance instructional quality.

Implications for Future Research

This study highlights several avenues for future research. Future work could investigate the long-term impact of reading strategy instruction on larger and more diverse populations, including those with varying L2 proficiency levels. Studies can also include control groups to more conclusively determine the causal link between the intervention and observed comprehension gains. Employing research designs that can isolate and measure the effects of specific strategies on overall comprehension improvement would be beneficial. Furthermore, online training programs, particularly in contexts like Türkiye, need to be refined to optimize their design to address proficiency differences, technical challenges, and time management constraints. Quantifying the effects of text nativization and simplification on reading comprehension and learner engagement is also a valuable research direction. Finally, exploring how to best integrate high-stakes exam preparation (e.g., LGS) with a holistic reading strategy development approach is crucial for contexts such as Türkiye.

Conclusion

This study examined the effects of an online reading strategy training program on 8th-grade EFL students' reading comprehension and explored the perceptions of both students and the trainer. While immediate comprehension gains were modest, delayed post-test results indicated sustained improvement, underscoring the long-term benefits of explicit strategy instruction.

Qualitative findings offered insight into students' engagement and strategy use, highlighting the critical role of metacognitive awareness, structured instruction, and scaffolded practice in the development of reading comprehension. Teacher preparation also emerged as a key factor in delivering effective strategy-based instruction.

However, several limitations must be acknowledged. The small sample size ($N = 28$) and absence of a control group limit the generalizability of findings and restrict causal interpretation. The program, designed for A2-level learners based on MoNE standards, faced a key challenge: it didn't fully accommodate the inherent variations in students' language proficiency, background knowledge, or learning preferences. These individual differences are crucial, and their inadequate consideration likely influenced the overall program outcomes. Additional challenges included technical issues, time constraints, and the potential for bias in self-reported data from diaries and interviews. Some texts were simplified or nativized to improve accessibility, yet the specific impact of these modifications on comprehension was not directly assessed. Furthermore, while overall gains in strategic reading were observed, the study could not determine which individual strategies contributed most significantly reflecting a broader challenge in evaluating multi-strategy interventions.

Despite these limitations, students expressed a strong desire to extend the program's duration and incorporate content relevant to high-stakes assessments such as the LGS. This feedback points to the importance of aligning instruction with learners' academic goals and

perceived needs. For students at this level, relevance is shaped by practical exam preparation.

Declaration of AI Use in the Writing Process

The authors of this paper acknowledge that in developing this manuscript, Chat GPT 3,5 was used to assist in refining the clarity of writing. Continuous human oversight (editing and revising) and verified the AI-generated output were maintained. AI was never used to find, locate, or review literature or resources, summarize the articles, analyze the selected articles, or synthesize the findings. All analyses and higher-level efforts were completed by the authors.

Declaration of Ethical Standards

The research adheres to ethical standards ensuring that participants are fully informed of their role as research subjects, the voluntary nature of their participation with the right to withdraw at any time, the purpose and scope of the research project, the measures taken to maintain confidentiality, and any potential risks associated with their involvement. Participants are aware that the results of the study may be presented for publication, and their informed consent is obtained before their participation.

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Appendices

APPENDIX A Diary Questions

Researcher Diary Questions

1. Can you briefly summarize the process?

Trainer Diary Questions

1. What are your opinions about the instruction provided by the researcher?
2. What are your opinions about the materials prepared for the training?
3. What do you think about the effectiveness of this week's strategy training?
4. What were the positive aspects of this week's training?
5. What were the aspects that needed to be developed?
6. Which parts of the training did the students have difficulty with?
7. What are your opinions about this week's training? Do any parts need revision?
8. What are your suggestions for the next week?
9. Any other comments?

Student Diary Questions

1. Can you provide an in-depth overview of your training journey, highlighting key milestones and challenges you encountered?
2. Reflecting on your training, can you identify specific aspects or techniques that you found particularly beneficial to your learning and development?
3. Can you assess the clarity and effectiveness of the instructions provided by your trainer? Were there any gaps or areas where additional guidance would have been helpful?
4. Can you evaluate the adequacy of the training material? Were they comprehensive enough to cover the necessary topics, or were there areas where additional resources would have enhanced your understanding?
5. Can you explore the unique aspects of this training that set it apart from your previous experiences? How did these differences impact your learning and engagement?
6. Can you share instances where you applied strategies or knowledge gained from this training in real-world? How did this compare to your previous experiences?
7. Can you identify any moments during the training when you had uncertainties or questions? How were these addressed, and did they impact on your overall understanding of the material?
8. Can you recall the most memorable or impactful moments from this week's training? How did these instances contribute to your learning experience?
9. If given the opportunity to attend the same training again, what adjustments or changes would you consider enhancing the overall effectiveness of the program?
10. Can you reflect on your current level of independence in applying the strategies learned during the training. Can you confidently use these skills without external guidance?
11. Can you offer constructive suggestions for improving next week's training? What areas could be refined or expanded upon to better meet your needs?
12. Is there any additional information or insights you would like to share about your training experience that haven't been addressed by the previous questions?

APPENDIX B Interview Questions

Semi-Structured Interview Questions with The Trainer

1. What is your overall impression of the online strategy training sessions, taking into account factors such as content delivery, engagement, and applicability to real-world scenarios?
2. Reflecting on the various strategies employed in the training, which specific strategy stands out to you as the most beneficial for participants? Could you provide concrete examples or instances that illustrate its effectiveness?
3. Conversely, when considering the strategies used, which one do you perceive as less effective for participants? Please delve into the specific aspects or limitations that contribute to its reduced effectiveness.
4. How do you assess the sequence or order in which the strategies were presented during the training? In your opinion, did the arrangement enhance or hinder the participants' comprehension and application of the strategies?
5. If given the opportunity to conduct these online training sessions again, what specific changes or improvements would you propose to enhance the overall learning experience for participants? This could include adjustments to content, delivery methods, or interactive components.
6. Is there anything else you would like to share based on your experience with the online strategy training sessions? Are there any noteworthy insights, observations, or unexpected outcomes that haven't been covered by the previous questions?

Semi-Structured Interview Questions with Students

1. What were your overall impressions of the online reading comprehension strategy training?
2. How did the training contribute to your understanding of reading comprehension and its strategies?
3. Which specific strategies introduced in the training did you find most beneficial? Why?
4. Were there any particular areas of the training that you felt were lacking or needed more focus?
5. How effective were the training materials (e.g., activities, videos, interactive exercises) in supporting your learning?
6. What was your experience with the pace of the training? Was the content delivered at an appropriate speed?
7. How would you rate the trainer's expertise and teaching style? Did the trainer effectively facilitate learning and engagement?
8. What aspects of the online learning environment contributed positively to your learning experience? Were there any challenges?
9. Have you applied the learned strategies in your daily life or academic work? If so, how?
10. Are there any specific changes you would recommend improving the training program?