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Exploring the Impact of SCOBA Creation on Language Learners' Reading and Reflective Thinking Skills in Concept-Based Reading Curriculum

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Abstract
A new reading curriculum incorporating the principles of concept-based instruction and reading strategy instruction was designed and implemented for a previous study. Concept-based instruction was compared with reading strategy instruction to determine the impact of the new curriculum on language learners' reading and reflective thinking skills. The data revealed that the concept-based group performed better in reflective reading and thinking skills.
The new curriculum involves the creation of a Schema of a Complete Orienting Basis of an Action (SCOBA) during reflection sessions. To explore the necessity of SCOBA creation, an experimental study with two groups was conducted, where only one group created a SCOBA. Both groups received concept-based reading instruction and were compared based on their reading, reflective reading, and reflective thinking skills. The data revealed that the groups performed similarly in reading and reflective reading skills, but the SCOBA group performed better in reflective thinking skills. The study sheds light on the importance of incorporating reflective thinking activities, such as SCOBA creation, in concept-based reading instruction.

Keywords: Reading instruction, Dialogic reading instruction, Concept-based instruction, SCOBA, Bakhtin, secondary genres, Reading multiple texts, Reflective thinking

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Introduction

Dialogic reading instruction receives much attention in first language reading research (Beck et al., 1997; Brown & Campione, 1998; Moats, 2004; Tierney & Cunningham, 1984; Wilkinson & Son, 2011; Wineburg, 1991a; Wineburg, 1991b). Exclusive focus on generic reading skills through reading strategy instruction is being abandoned, and dialogic teaching practices are encouraged (Wilkinson & Son, 2011, p. 367). In English as a Foreign Language (EFL), on the other hand, reading instruction mainly involves teaching reading strategies (Grabe, 2002; Grabe & Stoller, 2019), and dialogic teaching practices receive little attention. Therefore, there is a need to incorporate dialogic reading instruction into EFL reading instruction.

Dialogic reading instruction can be categorized into four types: content-rich instruction, discussion, argumentation, and intertextuality (Wilkinson & Son, 2011, p. 367). Content-rich instruction combines reading strategy instruction with subject-matter learning, providing a meaningful context for strategy use (Greenleaf et al., 200; Guthrie et al., 2004; Romance & Vitale, 2001). Discussion, a widely used method, involves students exchanging ideas on text content in a systematic way (Anderson et al., 1998; Beck et al., 1997; Billings & Fitzgerald, 2002; Eeds & Wells, 1989; Goldenberg, 1992/1993; Raphael & McMahon, 1994; Sharp, 1995; Short & Pierce, 1990). During discussions, students focus on aesthetic, efferent, and critical-analytic stances toward texts (Rosenblatt, 1978). Argumentation programs emphasize developing argumentation skills, with students forming and defending arguments (Michaels et al., 2008; Reznitskaya & Anderson, 2002). Intertextuality involves reading multiple texts to construct meaning and make cross-textual links, promoting critical thinking and reflection (Armstrong & Newman, 2011; Hartman, 1995; Hynd, 1999; Seixas, 1993; Wineburg, 1991a). Despite its benefits, intertextual instruction is less researched and not widely practiced among classroom teachers (Bråten et al., 2020).

To extend dialogic approaches to EFL reading instruction, I designed a new reading curriculum for EFL learners based on concept-based instruction (CBI) (Elkonin, 1999; Davydov, 1990; Davydov, 2008; Gal'perin, 1989; Gal'perin, 1992). After designing the curriculum, I conducted an experimental study comparing it with a reading curriculum exclusively focusing on reading strategies and unrelated texts (the author, 2018). The study results showed that reading strategy instruction enriched through CBI was more conducive to developing language learners' reflective reading and reflective thinking skills (the author, 2018).

The new curriculum, described and assessed in the first study (the author, 2018), had two components: (1) reading tasks and texts selected and sequenced based on a core concept relevant to reading; and (2) reflective sessions during which the students created and revised a SCOBA (Schema of a Complete Orienting Basis of an Action), which contained the students' visual representation of the core concept.

This article presents a follow-up study aiming to investigate whether the SCOBA activity can be omitted without compromising the positive outcomes in students' reading, reflective reading, and reflective thinking skills. This research focus holds significance for two main reasons.

Firstly, this study contributes to advancing concept-based reading instruction in both EFL and first language reading contexts. The possibility of omitting the creation of a SCOBA from the curriculum can make concept-based reading instruction more adaptable across diverse educational settings. The implementation of a curriculum depends on various factors such as learning outcomes, available resources (time and technology), classroom environment (class size, student engagement, and layout), and teacher expertise (beliefs, knowledge, and experience) (Graves, 2021). Some teachers may choose to focus solely on reading texts and tasks while leaving out the SCOBA element due to constraints in their teaching contexts. Additionally, teachers' beliefs about how to teach reading skills may hinder the complete application of concept-based reading instruction, as reflecting on reading-related concepts is not a common practice in traditional reading instruction.

Secondly, a literature review conducted on first- and second-language reading instruction reveals that no prior research has explored the possibility that reflecting on reading-related concepts may influence reading comprehension. Hence, this study could be pioneering research to investigate the impact of students' reflection on reading-related concepts on their reading skills.

In conclusion, concept-based reading instruction, as described in this study, represents a novel approach to EFL reading instruction. However, the specific components of concept-based instruction that contribute to the development of particular skills remain unexplored. Thus, the present study aims to investigate whether creating and revising a SCOBA on a reading-related concept enhances language learners' reading and reflective thinking skills. To address this research agenda, an experimental study with two groups was designed. Both groups were taught using the concept-based curriculum, but only one group was assigned the task of creating and revising a

SCOBA on the reading-related core concept. Students' performance in both groups will be assessed in terms of reading, reflective reading, reflective thinking, and critical reflective thinking skills before and after a 16-week instruction period.

Background

Concept-Based Reading Instruction and Curriculum

James Lantolf pioneered the extension of concept-based instruction to second language teaching (Lantolf, Xi, & Minakova, 2020). CBI has a theoretical base in Vygotsky's cultural-historical psychology and activity theory (Elkonin, 1999; Davydov, 1990; Davydov, 2008; Gal'perin, 1989; Gal'perin, 1992). Cultural-historical theory's explanations of school instruction center around the notions of scientific concepts and developmental learning (Davydov, 1990). In this section, I elaborate on these two central notions as understood in cultural-historical theory and how they guided the design of the new concept-based EFL reading curriculum.

Scientific Concepts and Developmental Learning

CBI places significant emphasis on scientific concepts. From a cultural-historical theoretical perspective, learning these scientific concepts, unlike everyday concepts, is developmental for children and young people because scientists form, elaborate, and structure them hierarchically through collective synthesis, analysis, and reflection (Vygotsky, 1987). However, merely teaching scientific concepts alone is insufficient for achieving developmental learning. Instruction should focus on the most general concept of a scientific discipline and the accompanying mode of thinking (Davydov, 1990). In other words, the curriculum and its tasks should reflect the prevalence of this most general concept and its essential features. This approach allows learners to develop a general orientation towards a discipline, enabling them to tackle numerous relevant tasks without getting lost in details (Zuckerman, 2003). Additionally, designing the curriculum and tasks based on the most general concept facilitates learning other associated sub-concepts in a relevant discipline (Davydov, 1990; Devlin, 2009; Schmittau, 2004).

Following the curriculum design principles mentioned above, I concluded that "communication through texts" could serve as the most general concept to shape the new reading curriculum, as the concept of communication has been considered essential for language teaching and curriculum design since the 1980s (Canagarajah, 2016). However, finding a scientific account of this concept that could truly make the curriculum dialogic and developmental proved challenging due to the vast literature from various disciplines such as linguistics, language acquisition, reading research, information technology, philosophy, and literature (Blackburn, 2007). After conducting a literature review on communication models and reading research, I found that Mikhail Bakhtin's dialogism was the most suitable for an EFL concept-based reading curriculum (Bakhtin, 1981; Bakhtin, 1986).

Mikhail Bakhtin, who extended the concept of dialogue to secondary genres or texts, wrote extensively about how texts are used to communicate meanings in the overall cultural system (Bakhtin, 1981; Bakhtin, 1986; Todorov, 1984; Holquist, 2002; Morson & Emerson, 1990; Fernyhough, 1996; Blackburn, 2007). Therefore, Bakhtin's work on secondary genres aligns with cultural-historical theory, which aims to balance cognitive and social factors in human psychology (Vygotsky, 1987).

Based on Bakhtin’s ideas, the texts and tasks in the new curriculum are chosen and sequenced in a way to show students that (1) texts are like rejoinders or turns in face-to-face conversations; (2) texts are tools of society to discuss important issues; (3) there are different perspectives regarding the issues discussed; (4) a writer always expects a response from the reader (confirmation or rejection of ideas and perspectives presented in the text); and (5) replicating the content of a text in our minds is passive understanding.

The new curriculum incorporates Bakhtin's idea of intertextuality. Each unit's texts either respond to each other or explore the same theme from different perspectives. Additionally, Turkish texts are included to let students explore their culture's approach to the themes. Essentially, each unit revolves around a central theme with multiple interacting texts. As students read these texts, they (1) gain a deeper understanding by accumulating information from different sources; (2) observe writers' responses and perspectives, noting contradictions, similarities, and writing style differences; (3) develop a personal perspective, either confirming or rejecting certain viewpoints; and (4) express their responses to the content and style of the texts through writing and speaking.

The classroom tasks were designed to align with Bakhtin's distinction between active and passive understanding. Two types of tasks were implemented. The first type focused on retrieving information from the text without going beyond its content. These tasks included answering questions that required specific information, identifying the main idea, summarizing key points, completing sentences, responding to true-false statements, engaging in matching exercises, and practicing vocabulary. The latter type of task involved evaluating the content and style of the texts. For instance, in the unit on divided sleep, students were prompted to answer questions such as 'Is divided sleep healthy? Would you like to practice it?' as they engaged with multiple texts on the topic. Additionally, they were asked to assess the style of the texts they read regarding divided sleep. Throughout the instruction period, these evaluation tasks were consistently given to the students.

As mentioned in the introduction, the curriculum consisted of two main components: (1) the texts and tasks selected based on Bakhtin's ideas on communication through text; and (2) the creation of a SCOBA, which is a fundamental element of concept-based instruction. The objective of this study is to investigate the potential impact of creating SCOBAs on language learners' reading, reflective reading, and reflective thinking skills. In the following section, I describe what a SCOBA is in concept-based instruction and how it was incorporated into the new curriculum. I also touch upon the connection between creating a SCOBA and reflective thinking.

SCOBAs and Reflective Thinking

The term SCOBA (Schema for a Complete Orienting Basis of an Action) was introduced to Concept-Based Instruction (CBI) by Galperin, who studied the function of the mind in our daily activities and the transformation of material actions into ideal and mental actions (Arievitch, 2003; Wertsch, 2000; Haenen, 1996). Galperin argued that the mind's main role was to plan and regulate a person's future mental and material actions, particularly in situations involving non-standardized tasks. He introduced the concepts of orienting activity and orienting the basis of an action (OBA). According to his theory, all human activity consists of two parts: the orienting part and the execution part. The orienting part precedes the actual task performance (execution). During the orienting part, we first create a mental image of the desired outcome of the activity. Additionally, during the orientation activity, we mentally assess and test the results of both mental and material actions available to us. These mentally created representations, known as OBAs, enable us to evaluate the execution phase. We can determine whether our imagined outcome is being achieved at a desirable level or whether new tools and skills are required to attain the imagined or ideal outcome.

The content of OBAs is influenced by relevant past experiences (Engeness, 2020). Thus, the richness and completeness of our OBAs depend on the relevance of our prior experiences. Individuals with richer and more complete OBAs tend to excel in selecting suitable actions, anticipating and evaluating outcomes, and achieving their envisioned goals. In education, Galperin extended this concept to suggest that high-quality OBAs provided to students can enhance their performance in learning tasks and improve their understanding of school concepts (Engeness, 2020). Galperin used the term Scheme of Complete Orienting Basis of an Action (SCOBA) to describe high-quality OBAs designed by teachers for educational purposes (Gal'perin, 1992). In other words, OBAs represent learners' initial orienting bases, while SCOBA refers to the orienting basis teachers aim to instill in students during their learning tasks. A SCOBA should contain the following elements (Haenen, 1996, p. 135):

(1) the intended output of an action;
(2) the pattern or model of the action as executed by an 'expert';
(3) the means of the action;
(4) the objects of the action;
(5) a general plan of action, an 'action-algorithm' or 'operational thinking scheme' giving the course of the action and the sequence of its operations in a summarised form;
(6) the orienting chart or 'cheat-sheet' representing the previous five components in such a way that it serves as a 'tool of action.'

Learners can appropriate a SCOBA in two main ways: by receiving a ready-made SCOBA from the teacher or by being guided to create their own SCOBA. For the new curriculum, I opted for the guided SCOBA method (see Haenen, 1996 for the first type). The content of the SCOBA in the new curriculum was implicit in the selection of texts and classroom tasks, following Bakhtin's dialogism. The SCOBA's elements in the new curriculum included: (1) Intended Output: Learners were expected to provide oral or written personal responses to the texts' content and the writers' style. (2) Model of the Reading Action: Learners engaged in active and dialogic understanding, following Bakhtin's distinction. (3) Means of Action: Learners read multiple texts with various perspectives on a theme. (4) Object of the Action: Learners interpreted and responded to a text by incorporating content from other related texts and their personal experiences. (5) Orienting Chart: The SCOBAs were created by learners in four reflection sessions (see Appendix A for the SCOBAs created by the students).

Galperin emphasized the importance of a good SCOBA being schematic and visual to promote active and reflective learning of scientific concepts (Zuckerman, 2003). During the initial stages of instruction, teachers should avoid providing students with overly precise or ready-made wording, as this can lead to mere memorization and speech stereotypes unrelated to actual learning objectives (Galperin, as cited in Engeness 2020, p. 41). To prevent such memorization, a SCOBA should visually represent the concept and its associated mental and material actions. This visual representation encourages students to use their own words, making their mental actions visible to both teachers and themselves. Consequently, students can better evaluate the correspondence between their imagined and actual outcomes, as well as the effectiveness of their mental strategies in achieving the desired outcome.

During the implementation of the new curriculum, students participated in four reflection sessions, each lasting three 45-minute class periods and occurring once a month. The first session began on the first day of instruction, where students were assigned to groups of four and tasked with visually mapping their reading experiences by answering questions like, 'How do you think communication happens through texts? Can you describe your ideas visually on a piece of paper?'. One student from each group presented the group's drawing to the class, and a new visual representation was collaboratively created. In the following three reflective sessions, held monthly, students revised their previous drawings. These diagrams or schemes served as memory aids during discussions and helped track learners' conceptual development.

The SCOBA activity did not involve direct imitation; instead, it required reviewing past reading experiences and abstracting essential characteristics of texts and communication. It also involved forming and revising hypotheses about the curriculum's core concept, aligning with Bakhtin's ideas. This inherent nature of the SCOBA activity suggests that including SCOBA in a concept-based reading curriculum could enhance learners' reflective thinking. Reflective thinking involves “a careful re-examination and evaluation of experiences, beliefs, and knowledge, leading to new perspectives” (Kember & McKay et al., 2008, p. 370). Therefore, the study assessed reflective thinking to examine the effects of SCOBA creation on learners' reading and reflective thinking abilities.

Conceptual Focus in Reading Instruction and Curriculum

Conceptual focus is unavoidable in reading instruction because texts, whether fiction or non-fiction, always revolve around one or more concepts. However, the idea of a conceptual focus in reading instruction pertains to how curriculum and material designers utilize concepts to choose and organize texts and tasks within a reading program. This section explores different approaches to incorporating concepts in both first and second language reading curricula and material design.

The first approach involves teaching subject-matter concepts, with texts grouped based on core and associated sub-concepts. Examples include Concept-Oriented Reading Instruction (CORI) (Guthrie et al., 2004), In-Depth Expanded Application of Science (IDEAS) (Romance & Vitale, 2001), and Reading Apprenticeship (Greenleaf et al., 2001). In second language education, Content and Language Integrated Learning (CLIL) programs also adopt this approach. In CLIL, language learners read texts to learn the language and subject matter concepts (DeBoer & Leontjev, 2020). These programs generally do not present alternative views on the concepts within the texts and avoid inconsistencies across texts.

The second approach treats concepts in texts critically, encouraging students to question how worldviews or beliefs shape these concepts. Several first language programs follow this approach, such as Collaborative Reasoning (Anderson et al., 1998), Paideia Seminars (Billings & Fitzgerald, 2002), and Philosophy for Children (Sharp, 1995). In these programs, students and teachers have interpretive authority and use extratextual knowledge to question concepts in texts. Learners rely on personal experiences to approach concepts critically within a single text, without using other texts for different perspectives. Concepts are not generally presented through multiple texts containing contradictory perspectives.

The third approach involves focusing on a single or limited number of concepts across a series of texts to ease students' cognitive burden during the reading process. Research on reading emphasizes the strategic use of prior knowledge, making it critical for successful comprehension (Renandya, Krashen, & Jacobs, 2018; Schmitt & Carter, 2000). Assigning a series of texts on the same topic helps students read fluently and confidently, as they don't need to construct new background knowledge for each text. An example of this approach is narrow reading, commonly used in second language teaching, where learners read multiple texts from the same author or on the same topic over an extended period of time (Chang & Millet, 2017). This approach ensures vocabulary recycling, aiding students' vocabulary acquisition through repeated exposure (Chang, 2019; Renandya, Krashen, & Jacobs,

2018; Kang, 2015; Schmitt & Carter, 2000). However, narrow reading primarily occurs outside of class time, requiring minimal classroom instruction.

The new curriculum adopts a dual conceptual focus that is hierarchically related. The lower focus centers on concepts presented in the texts. Throughout the instruction period, students engage with multiple texts organized around specific concepts or issues, enabling them to delve deeply into these concepts by exploring various perspectives. On the other hand, the higher focus revolves around texts and written communication itself. This aspect was integrated into the curriculum through the text and task selection and creation of a SCOBA over four reflection sessions (described earlier). The overarching goal was to instill in students a general communicative orientation and conceptualization, as defined by Bakhtin, regarding texts, reading tasks, and the communication process facilitated by texts.

The way language learners conceptualize texts and written communication can significantly impact their text comprehension and reading improvement efforts (Conradi, Jang, & McKenna, 2014). Factors such as the type of reading instruction, out-of-school reading experiences, and socioeconomic status influence students' conceptualizations (Heath, 1983; Heath, 1991; Lepola and Lynch et al., 2016). Some learners view texts as mere documents to decode, focusing solely on learning vocabulary and grammar rather than engaging with higher-level reading skills. Consequently, they may overlook the importance of drawing upon prior knowledge from other texts and personal experiences to comprehend new material. While integrating personal experiences and information from other texts may come naturally with easier material, it becomes challenging with difficult passages, leading to comprehension difficulties and a loss of motivation.

The way language learners conceptualize texts and written communication can be attributed to their teachers' instructional practices and the reading materials used in class. When teachers primarily use texts as a context for teaching grammar and vocabulary while neglecting tasks and materials that promote higher-level reading skills, learners' conceptualizations may remain at a lower level. Additionally, using authorless texts most of the time can hinder students from paying attention to authors' perspectives and styles when reading. These examples illustrate how teaching practices and specific aspects of a reading curriculum can shape learners' conceptualizations, ultimately influencing their reading habits and strategies.

The new reading curriculum aimed to replace students' everyday conceptualizations of texts and written communication with a dialogic perspective. Three curriculum design strategies were employed to achieve this goal. Firstly, the curriculum included texts written in response to each other, exposing students to the elaboration of concepts through social-level communication. The second strategy involved selecting tasks that required students to express their views on the main concept of each module, assess the writers' styles, and provide reasons for their preferences. The third strategy involved creating a series of SCOBAs and visually recording students' conceptualizations of texts and written communication. These three elements in the new curriculum prioritize the concept of written communication.

Methodology

The study has a pre- and post-test quasi-experimental design with two groups. Both groups received concept-based instruction, but only the experimental group created a SCOBA in four reflection sessions. Therefore, in the article, the experimental group's instruction is called Concept-Based Instruction with a SCOBA (CBI with SCOBA), and the control group's instruction is called Concept-Based Instruction without a SCOBA (CBI without SCOBA).

Research Questions

RQ1: Does creating a SCOBA improve students' reading skills?
RQ2: Does creating a SCOBA improve students' reflective reading skills?
RQ3: Does creating a SCOBA improve students' reflective thinking skills?
RQ4: Does creating a SCOBA improve students' critical reflective thinking skills?

The Setting and The Participants

The study was conducted at a preparatory EFL program at a state university in Türkiye. The students attended English classes for five hours a day over an eight-month period before starting their regular faculties. Reading instruction was allocated eight hours per week. The students started the program as elementary-level language learners and progressed to become upper-intermediate language learners by the end. Turkish was the mother

tongue for most students. Two classes were randomly selected and assigned as the experimental and control groups. The researcher taught both groups. Table 1 displays the distribution of the participants.

Table 1. The Participants in the Study

Gender	Experimental group	Control group	Total
Male	20	17	37
Female	7	8	15
Total	27	25	52

Data Collection and Analysis

The study utilized three instruments as pre- and post-tests for both groups. The first instrument consisted of two subscales from the Reflection Questionnaire (RQ) developed by Kember and his associates (Kember et al., 2000). The RQ assesses two levels of reflective thinking: reflection and critical reflection. Reflection involves a careful re-examination and evaluation of experience, beliefs, and knowledge, leading to new perspectives. On the other hand, critical reflection is the highest level, necessitating a transformation of deep-seated beliefs and leading to new belief structures (Kember & McKay et al., p. 370). The Cronbach Alpha coefficients for the subscales ranged between .62 and .76. The RQ consists of eight items rated on a 5-point Likert scale, ranging from 5 (Definitely Agree) to 1 (Definitely Disagree). The validity and reliability of the Turkish version of the RQ were investigated by Başol and Gencel (2013), and it was completed by the students in the study.

The second and third instruments assessed the participants' reading comprehension. These instruments were designed by the researcher based on the PISA 2015 Assessment and Analytical Framework, which describes critical reading skills for the 21st century (OECD, 2016, p. 54). The framework includes sample test items to evaluate specific reading skills and comprehension of multiple texts, which is crucial for the study.

Figure 1. Aspects of Reading in the PISA 2015 Assessment and Analytical Framework (OECD, 2016, p. 54)

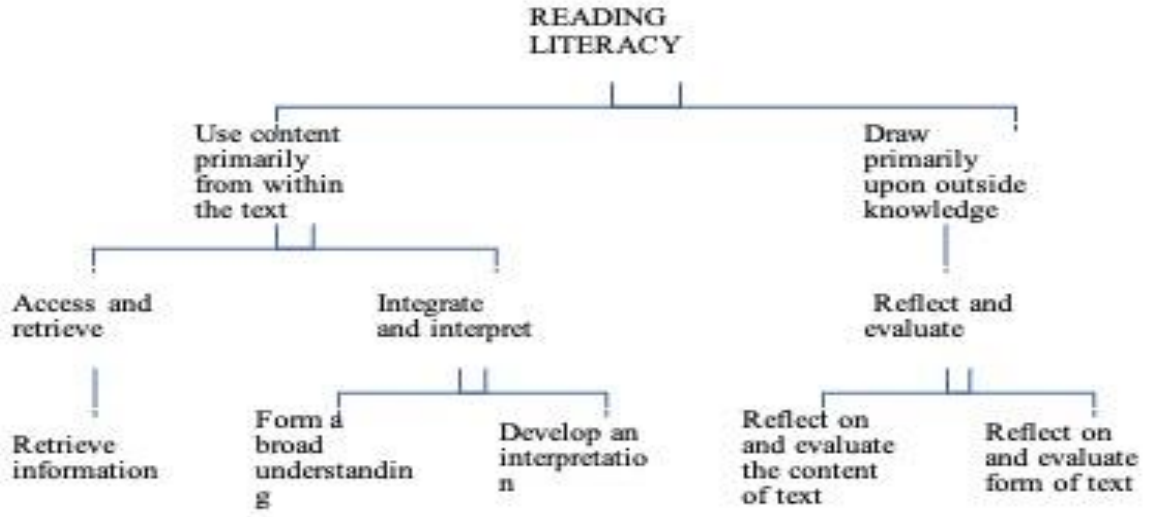

Figure 2. Aspects of Reading in the PISA 2015 Assessment and Analytical Framework (OECD, 2016, p. 54)

According to the framework, reading comprehension skills are categorized into two main types: those involving direct information from texts and those requiring knowledge beyond the texts. The first category served as the basis for designing the reading assessment instrument named Tasks for the Assessment of Target Reading Skills (TATRS). This instrument consisted of three reading texts and 20 items that could be answered using information solely from the texts. It aimed to evaluate students' performance in three aspects of reading comprehension: (a) retrieving information, (b) forming a broad understanding, and (c) developing an interpretation. The reliability of the TATRS was assessed in a prior study involving 117 preparatory English students from another state university in the same city (The Author, 2018). The Cronbach Alpha value of .82 indicated a desirable level of reliability for the TATRS.

The second reading assessment instrument, named Tasks for the Assessment of Reflective Reading Skills (TARRS), focused on evaluating the reading skills falling under the second category of the PISA 2015 Assessment and Analytical Framework (OECD, 2016). The same reading texts were used in this instrument, but the tasks required students to utilize information from multiple texts or beyond the texts. The TARRS consisted of four open-ended items, which prompted students to evaluate (a) the content and (b) the form of the texts included in the instrument. A scoring rubric was developed, with points ranging from 0 to 2 (0: missing, 1: partial score, 2: full score). The researcher scored the students' responses.

To assess the inter-rater reliability of the scores, the researcher and another English teacher independently scored all the students' responses in the post-test. The interrater reliability of the scores was calculated using Kendall's tau c on SPSS (Rovai, Baker & Ponton, 2014). The results indicated a consistent and satisfactory level of agreement between the scores given by the researcher and the other English teacher for all items.

Table 2. Interrater Reliability Statistics for the Open-ended Questions in TARSS

Question	Kendall's tau c	Significance
Q.9	.818	.000
Q.10	.756	.000
Q.17	.710	.000
Q.24	.753	.000

Data Analysis and Findings

The study aimed to determine whether creating a SCOBA would lead to a significant increase in the mean scores of the participants in the experimental group (CBI with a SCOBA) compared to the control group (CBI without a SCOBA). A total of 52 participants were recruited, with 27 in the experimental group and 25 in the control group. A one-way repeated ANCOVA analysis was conducted to test the hypothesis of a significant difference in the mean scores of four dependent variables (Reading Score, Reflective Reading Score, Reflection Score, Critical Reflection Score) between the pre-test and post-test measures.

The analysis also controlled for baseline test performance on each variable as a covariate. Including pre-test scores as a covariate helps control for individual differences in baseline performance and pre-group differences on the dependent variables, which could impact the interpretation of results. By doing so, any differences in pre-test scores among the participants can be statistically adjusted for, increasing the power of the analysis to detect the effects of the intervention on the dependent variable. Using pre-test scores as a covariate allows for a more precise estimate of the intervention effect by removing the potential confounding effects of individual differences in pre-test scores (Schneider et al., 2015).

The assumptions of the one-way repeated ANCOVA test were met in this study (see Appendix B for the test results). Table 3 displays the results of the ANCOVA tests.

Table 3. Analysis of Covariance (ANCOVA) Results for the Effect of an Intervention on Reading Scores and Reflection Measures by Group of Experiment versus Control.

	Source	Type III SS	df	Mean Square	F Value	P Value	Effect Size
Reading score	Model	1164.68	2	582.34	46.7	< .001	$\eta^2 = 0.65$
	Group	2.35	1	2.35	0.47	0.497	$\eta^2 = 0.01$
	Error	1016.32	49	20.74			
Reflective reading	Model	32.6	2	16.3	10.22	< .001	$\eta^2 = 0.39$
	Group	0.06	1	0.06	4.61	0.039	$\eta^2 = 0.01$
	Pre-reflective reading score	18.48	1	18.48	14.58	< .001	$\eta^2 = 0.23$
	Error	49.92	49	1.02			
Reflection	Model	147.63	2	73.81	7.53	0.001	$\eta^2 = 0.23$
	Group	25.23	1	25.23	8.09	0.006	$\eta^2 = 0.12$
	Pre-reflection score	22.62	1	22.62	9.62	0.003	$\eta^2 = 0.14$
	Error	347.64	49	7.1			
Critical reflection	Model	1866.15	2	933.07	67.51	< .001	$\eta^2 = 0.73$
	Group	96.17	1	96.17	25.09	< .001	$\eta^2 = 0.13$
	Pre-RQ critical reflection score	2321.02	1	2321.02	114.84	< .001	$\eta^2 = 0.61$
	Error	648.87	49	13.24			

Note: This table presents the ANCOVA results for the effect of an intervention on post-reading scores, reflective

reading scores, reflection scores, and critical reflection scores, compared between experimental and control groups. The table displays the sources of variation, degrees of freedom, mean squares, F-values, and partial eta-squared values for each variable. df = degrees of freedom; SS = sum of squares; η^2 = partial eta squared.

Reading Skills

Based on the ANCOVA results, there was no statistically significant difference in post-reading scores between the experimental and control groups ($F(1,49) = 0.47$, $p = 0.497$). This suggests that the CBI with SCOBA did not have a significant effect on improving post-reading scores for the experimental group compared to the control group. However, it is important to note that the overall effect of the intervention on the post-reading score was significant ($F(2,49) = 46.70$, $p < .001$, $\eta^2 = 0.65$), which could be attributed to factors such as the presence of the same reading tasks in both instructional conditions, the participants' prereading scores, and other non-intervention-related factors. This result suggests that the CBI with SCOBA did not improve reading skills better than the CBI without SCOBA at a statistically significant level.

Reflective Reading Skills

The results of the ANCOVA indicate that there was a significant overall effect of the pre-reflective reading score on the post-reflective reading score ($F(2,49) = 10.22$ $p < .001$, $\eta^2 = 0.39$), as well as a significant effect of the grouping variable (experimental vs. control) on the post-reflective reading score ($F(1,49) = 4.61$ $p = .039$, $\eta^2 = 0.01$). The overall model was significant, with a large effect size ($\eta^2 = 0.39$), indicating that the pre-reflective reading score explains a substantial amount of the variance in the post-reflective reading score. However, the effect of the grouping variable on the post-reflective reading score was not significant, with a small effect size ($\eta^2 = 0.01$). These findings suggest that while the pre-reflective reading score is a strong predictor of the post-reflective reading score, there was no significant difference in the improvement of reflective reading scores between the experimental and control groups. This suggests CBI with SCOBA was not better at improving reflective reading skills than CBI without SCOBA at a statistically significant level.

Reflective Thinking

The results of the ANCOVA indicate a significant overall effect of the pre-reflection score on the post-reflection score and a significant effect of the grouping variable (experimental vs. control) on the post-reflection score. The overall model was significant ($F(2,49) = 7.53$, $p = 0.001$), indicating that the pre-reflection score and the grouping variable together explain a significant proportion of the variance in the post-reflection score. The effect of the grouping variable on the post-reflection score was significant ($F(1,49) = 8.09$, $p = 0.006$), with a medium effect size ($\eta^2 = 0.12$). This suggests the experimental group had a significantly higher post-reflection score than the control group. Additionally, the effect of the pre-reflection score on the post-reflection score was significant ($F(1,49) = 9.62$, $p = 0.003$), with a medium effect size ($\eta^2 = 0.14$). This suggests that the pre-reflection score is a significant predictor of the post-reflection score. Overall, these findings indicate that CBI with SCOBA had a significant impact on the post-reflection score and that the pre-reflection score is an important predictor of the post-reflection score.

There was a statistically significant mean difference in post-test scores between the experimental and control groups (mean difference = 1.63, SE = 0.57, $t(49) = 2.85$, $p < 0.01$, Bonferroni corrected), with a large effect size (Cohen's $d = 0.80$). This result indicates that the CBI with SCOBA was better at improving reflective thinking skills than the CBI without SCOBA at a statistically significant level.

Critical Reflective Thinking

The results of the ANCOVA indicate that there was a significant overall effect of the pre-critical reflection score on the post-critical reflection score, as well as a significant effect of the grouping variable (experimental vs. control) on the post-critical reflection score. The overall model was highly significant ($F(2,49) = 67.51$, $p < .001$), indicating that the pre-critical reflection score and the grouping variable together explain a large proportion of the variance in the post-critical reflection score. The effect of the grouping variable on the post-critical reflection score was significant ($F(1,49) = 25.09$, $p < .001$), with a small effect size ($\eta^2 = 0.13$). This suggests that the SCOBA group had a significantly higher post-critical reflection score than the group without SCOBA. Additionally, the effect of the pre-critical reflection score on the post-critical reflection score was significant ($F(1,49) = 114.84$, $p < .001$), with a large effect size ($\eta^2 = 0.61$). This suggests that the pre-critical reflection score is a very strong predictor of the post-critical reflection score. Overall, these findings indicate that the CBI with SCOBA had a

significant impact on the post-critical reflection score and that the pre-critical reflection score is an extremely important predictor of the post-RQ critical reflection score.

There was a statistically significant mean difference in post-test scores between the experimental and control groups (mean difference = 2.56, SE = 0.51, $t(49) = 5.01$, $p < 0.001$, Bonferroni corrected), with a large effect size (Cohen's d = 1.39). This result indicates that CBI with SCOBA improved critical reflective thinking skills better than CBI without SCOBA at a statistically significant level.

To sum up, the effect sizes for the grouping variable were moderate for reflective reading ($\eta^2 = 0.01$) and reflection ($\eta^2 = 0.12$) and small for critical reflection ($\eta^2 = 0.13$), indicating a modest but statistically significant effect of the CBI with SCOBA on the experimental group's scores. Additionally, the large effect size ($\eta^2 = 0.39$) for the pre-reflective reading score on the post-reflective reading score suggests that the pre-reflective reading score was a strong predictor of the post-reflective reading score, and the large effect size ($\eta^2 = 0.61$) for the pre-critical reflection score on the post-critical reflection score suggests that the pre-critical reflection score was an extremely important predictor of the post-critical reflection score. Therefore, the CBI with SCOBA significantly improved learners' reflective and critical reflective thinking skills, and the pre-intervention scores for reflective reading and critical reflection were important predictors of post-intervention scores. Overall, these findings suggest that the CBI with SCOBA may be a promising approach to enhancing learners' reflective thinking and critical reflective thinking skills.

Discussion and Implications

The data analysis presented earlier indicates that the CBI group with a SCOBA and the CBI group without a SCOBA performed similarly in terms of reading and reflective reading skills. Therefore, including a SCOBA activity in a concept-based reading curriculum may not significantly impact the positive results related to these skills. This result can be attributed to the presence of the same reading texts and tasks in both instruction conditions. Consequently, if a reading teacher's main goal is to improve students' basic reading and reflective reading skills, concept-based reading instruction without a SCOBA could be a feasible option. This finding is especially relevant because classroom time is limited, and language teachers must consider various factors when planning their instruction. In the current study, the students received 25 hours of EFL instruction per week, with eight hours allocated to reading instruction. This allowed for the implementation of a fully-fledged concept-based instruction. However, in EFL programs with fewer teaching hours, focusing on higher-order thinking skills like reflection and critical reflection may not be practical until learners have improved their basic reading and vocabulary skills. In such cases, teachers may still incorporate some aspects of conceptualizations of written communication within the constraints of the curriculum. For instance, teachers could occasionally discuss how texts are used in the overall cultural system, drawing parallels between face-to-face conversation and written communication. They may also encourage students to talk about how they deal with texts containing contradictory information in their daily lives. Simple tasks could be assigned to enhance students' conceptualizations of written communication, such as discussing whether they have read other texts on the same topic and how these texts relate to or differ from the reading text. Additionally, teachers may assign connected texts as homework instead of random texts to foster a more sophisticated understanding of concepts.

As noted earlier in the findings section, while both groups performed similarly in reading and reflective reading skills, the SCOBA group appeared to develop more in reflective thinking skills. This finding suggests that getting students to create a SCOBA can efficiently foster reflective thinking skills in reading classes. Developing reflective thinking skills in reading classes may not be as straightforward as it may seem. First, reflective thinking, a higher-order cognitive skill that'requires the subject of a thought process to become its object' (OECD, 2005: 8–9), does not develop most of the time without well-planned educational interventions. Secondly, reflection involves overarching metacognitive skills used and practiced across all scientific fields and domains of life. Therefore, its content varies depending on the scientific discipline, the life context in which it is practiced, and the educational context in which it is taught. Because of these inherent characteristics of reflective thinking, a relevant and interesting question is: what should be the content of students' reflections, or what should students reflect on in a reading program? Since no study specifically addresses this question in the context of reading instruction, it may be helpful to look at studies reporting interventions to improve reflective thinking in other contexts. Based on these studies, the content of reflective thinking can be 'beliefs', 'experiences', 'knowledge', 'actions','situations', 'ideas', and 'emotions' (Nguyen & Fernandez et al., 2014).

Looking at these potential content types, we can see that there are three main categories: cognitive content (e.g., knowledge, concepts, ideas), non-cognitive content (e.g., actions, experience), and affective content (feelings, attitudes) (Nguyen & Fernandez et al., 2014). Considering the first category in the context of reading instruction,

there are two possible options. The first option involves reflecting on concepts or ideas found in texts. In reading programs within this approach, students reflect on the ideas and concepts in texts. A relatively more careful and systematic intervention can involve learning deeply about a particular concept and then thinking about how to relate it to one's experiences to change actions or conceptualizations. In this more systematic intervention, presenting students with multiple texts organized around a theme or idea may be more effective. The second option can involve reflecting on concepts related to texts and written communication. In reading programs with this approach, students might reflect on text and written communication concepts, such as intertextuality, discourse community, genre, and literary devices. In simplistic terms, students reflect on how texts are used to communicate ideas and meanings, the nature of texts, interactions between texts, texts' impact on individuals (both the reader and the writer), and society. Reflecting on such concepts can help learners understand how authors convey meaning and develop the text's theme. This type of reflection can change students' reading habits and attitudes toward texts and written communication.

When we consider the second category (non-cognitive content such as actions and past experiences), the content of reflection in reading instruction can be students' reading experiences in and beyond the classroom. In this case, students reflect on how they read texts and their strategies to find better ways to complete tasks requiring reading skills. A relatively more systematic intervention can encourage students to reflect on their reading experiences in the context of social-level processes. For example, students can consider how communities of practice, which are groups of individuals who share a common interest or profession and regularly interact to develop shared knowledge and skills, bring their collective understanding and perspectives to the interpretation of texts (Seixas, 1993). This can help students develop a deeper understanding of how reading is influenced by social context and shared practices.

In the third category, the content of reflection is students' affective responses to texts and their content. In this case, reflection involves thinking about the emotions that arise in response to opinions, characters, and events in texts. This can help students connect with the texts more deeply and make meaning of their reading experiences. This content type may be suitable for reading programs that contain mostly literary texts (Rainey, 2017).

Given the background presented above, the new curriculum implemented both cognitive and experiential content approaches to reflective thinking in reading instruction. The students in the study reflected on how communication happens through texts and expressed their answers and ideas using visual representations such as schemes, pictures, or diagrams, known as SCOBAs. These SCOBAs served as memory tools to help students retain their reflections and also served as assessment tools for teachers to track students' conceptual changes. The results of the study demonstrated that the students who created SCOBAs exhibited greater improvement in their reflective thinking skills compared to those who did not create SCOBAs, despite both groups reading the same texts and completing the same reading tasks. This finding indicates that incorporating SCOBAs can effectively enhance students' reflective thinking in reading instruction. Reading teachers seeking to develop their students' reflective thinking can encourage them to reflect on reading-related concepts and employ SCOBAs to track their reflection process. Additionally, the curriculum used in this study provides teachers with valuable guidance on systematically and consistently incorporating reflective thinking skills into the reading curriculum through the use of SCOBAs.

However, reflecting on reading-related concepts in reading instruction to improve reflective thinking is not a common teaching practice. To address this gap in the literature, the present study offers preliminary data on the potential benefits of integrating reading-related concepts for developing reflective thinking skills in first- and second-language reading classes. Moreover, the study suggests that the creation of SCOBAs can serve as an effective teaching strategy when language-related concepts need to be reflected upon as part of a reading curriculum.

For teachers who do not wish to focus on reading-related concepts, an alternative approach is to encourage students to reflect on the concepts found within texts using concept mapping. One popular method is the "Novakian" approach, named after its originator, Joseph Novak (Novak & Gowin, 1984). This technique involves creating a hierarchical structure of concepts, with more general concepts at the top and more specific ones at the bottom. Connections between concepts are represented by lines or arrows, depicting the relationships between them. In the context of reading instruction, Novakian concept mapping can assist learners in organizing and structuring their knowledge, facilitating better understanding and retention of information, and promoting reflective thinking skills (Novak, 1990). Additionally, teachers can get students to create hierarchical concept maps in small groups and later share them with the entire class. This collaborative approach encourages interaction among learners and can support the development of reflective thinking skills. When students explain their concept maps and thought

processes to their peers, they gain better insight into their own understanding, leading to potential revisions of their concept maps compared to working individually. Finally, I recommend that teachers and material designers provide students with multiple texts grouped around a concept. Rather than using the Novakian method to represent the content of a single text, it would be more beneficial to ask students to create a visual representation of a group of texts clustered around the same topic. By doing so, students can continuously revise their concept maps as they encounter new information from each text, leading to further development of their reflective thinking skills.

Classroom procedures to develop reflective thinking skills are essential in reading instruction. The abundance of information we encounter every day may lead us to focus on information management rather than seeking reliable sources (Alexander, 2020). Many students, influenced by digital content, prefer consuming shorter texts like tweets and memes and find longer texts, such as book chapters and scientific articles, boring and challenging (Twenge, Martin, & Spitzberg, 2019). Another challenge is the presence of digital sources lacking credibility and expertise (Wineburg & McGrew, 2019), along with purposefully deceptive and misleading content. This makes information seeking risky, particularly for young students (Sinatra & Lombardi, 2020). Research indicates that students often rely on search engines for text choices and struggle to differentiate credible from unreliable sources (Bråten et al., 2011; List & Alexander, 2017). Furthermore, students may unconsciously or consciously select sources that align with their pre-existing beliefs rather than critically evaluating sources (List, Grossnickle, & Alexander, 2016). This behavior, along with a tendency to address contentious issues in a black-and-white manner (Bråten et al., 2011), hinders students from forming balanced arguments. These challenges demand urgent attention in reading classes, materials, and curriculums (Alexander, 2020). In the 21st century, readers require higher-order reading skills beyond basic comprehension, and these skills must be explicitly taught in schools.

Focusing explicitly on communication through texts seems like a promising instructional approach to help first- and second-language readers overcome the daily reading challenges they encounter. Such a focus can raise students' awareness of how texts are used for communication and meaning-making in society and encourage them to read more about contentious issues before forming their perspectives. An explicit focus on the concept of 'communication through texts' in reading instruction also aligns with pedagogical experts' arguments that schools should teach the four C's: communication, critical thinking, collaboration, and creativity (Trilling, 2009; Kivunja, 2015; Davidson, 2017).

Conclusion

Two broad conclusions could be drawn from the findings of the current study. The first is that getting students to create SCOBAs can be omitted in concept-based reading instruction without lessening the positive results in improving students' basic reading and reflective reading skills. Second, getting students to create SCOBAs could be a viable classroom teaching strategy to develop students' reflective thinking skills in reading instruction.

The study's findings are interesting, but there are several limitations that open up lines of inquiry for future research. First, the study did not involve many participants. It, therefore, remains to be seen whether and to what extent the findings reported here may transfer to classrooms in other contexts. Second, the study provided no data on students' views on concept-based reading instruction. Future research is needed to determine what aspects of CBI are considered favorable or unfavorable by students. Third, applying concept-based reading instruction falls on the shoulders of teachers and material writers, and the present study did not provide any data on their views. Future research is needed to determine possible drawbacks and challenges in applying concept-based reading instruction from the perspective of teachers and material writers. Fourth, the new curriculum was implemented, with EFL students receiving eight hours of reading instruction weekly. Many EFL learners, on the other hand, do not have that much classroom time dedicated to reading instruction. Future research is needed to investigate how concept-based reading instruction can be implemented with EFL students who have two hours of instruction in EFL skills. A final future line of inquiry involves finding other potential reading-related sub-concepts to enrich the reading curriculum described in the study.

Ethical Approval

Ethical permission (56– 11.07.2023) was obtained from Ethics Committee of Selçuk University Faculty of Education for this research.

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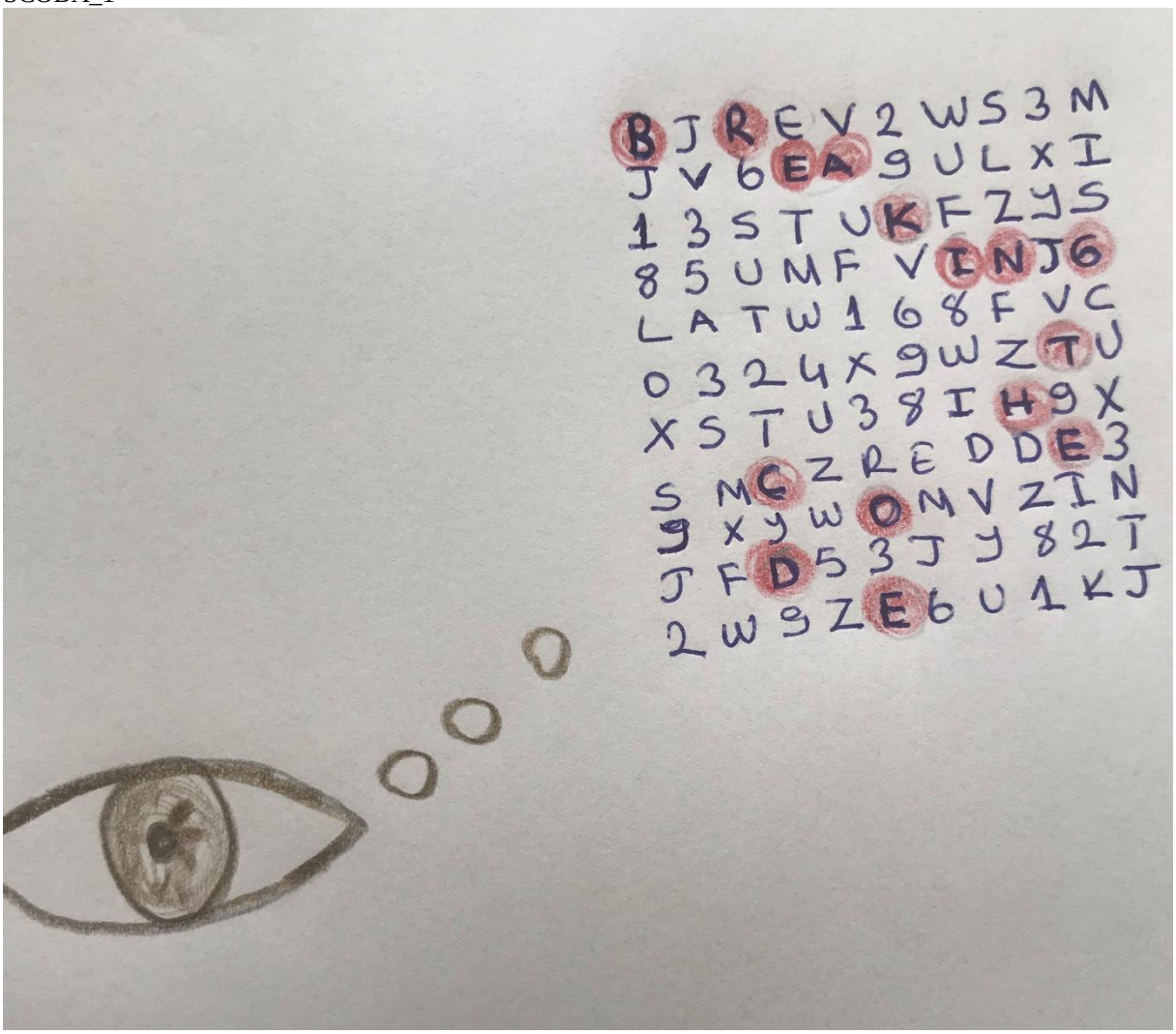
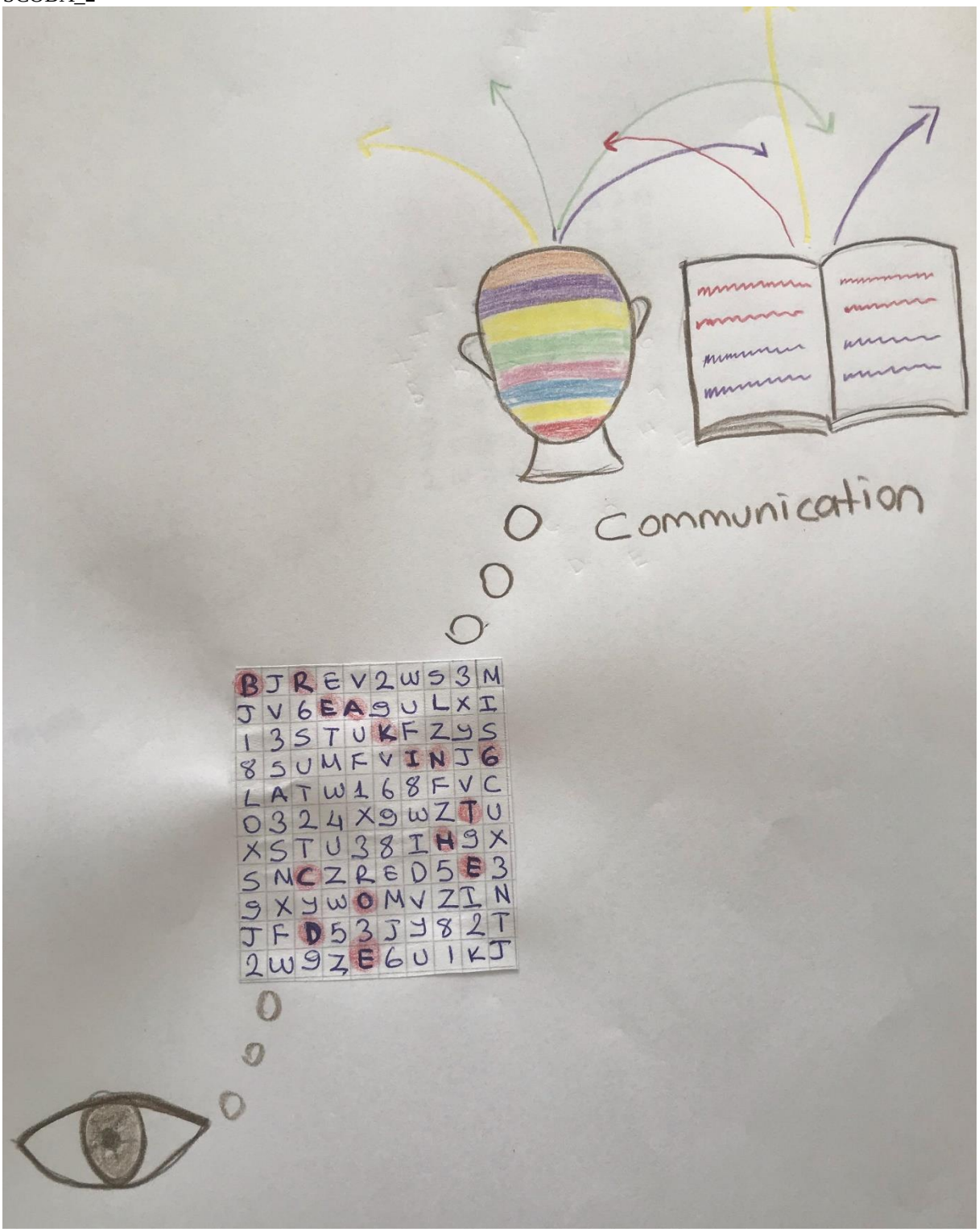
APPENDICES

APPENDIX A

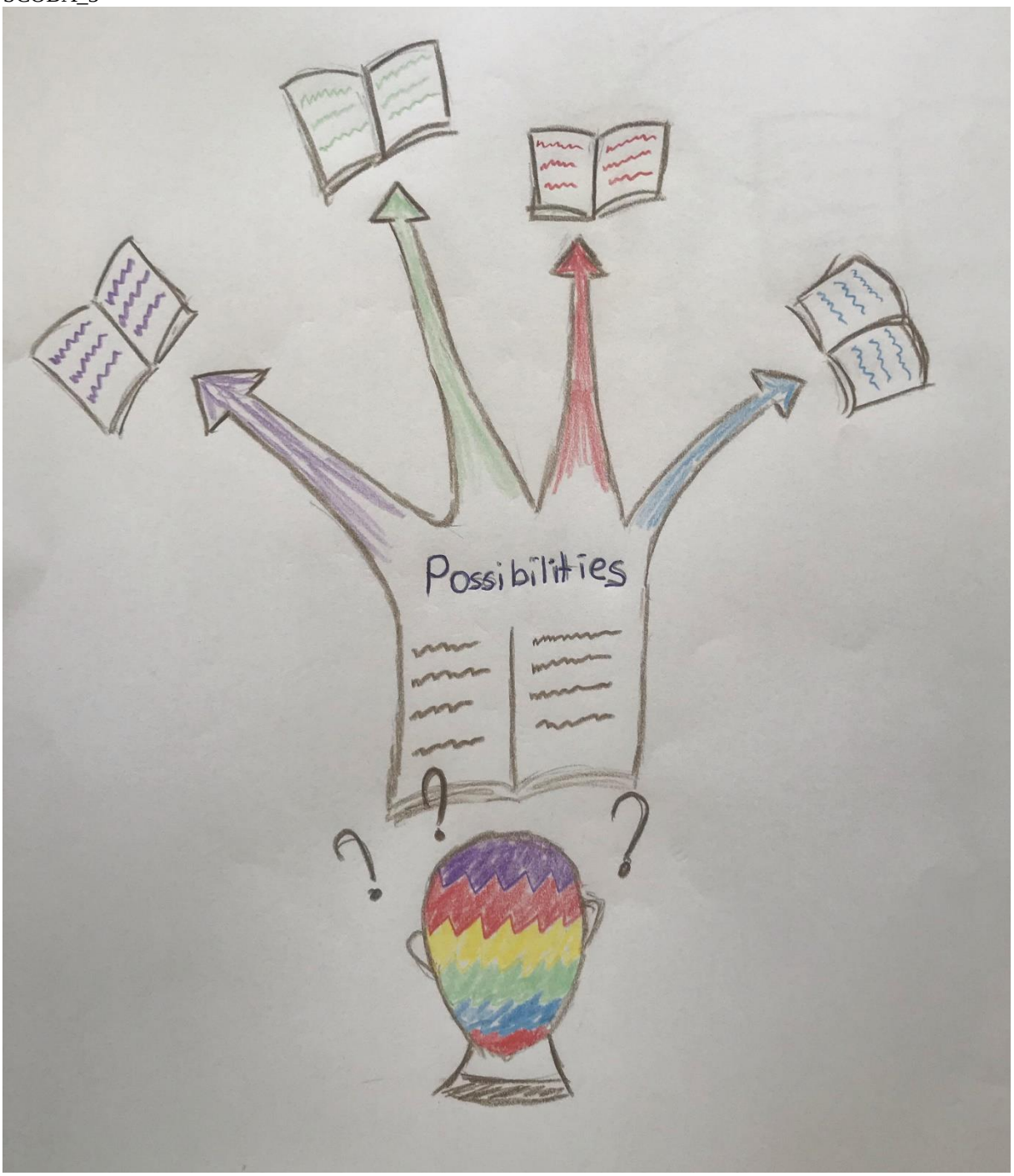
The SCOBAs created by the SCOBA group
SCOBA_1



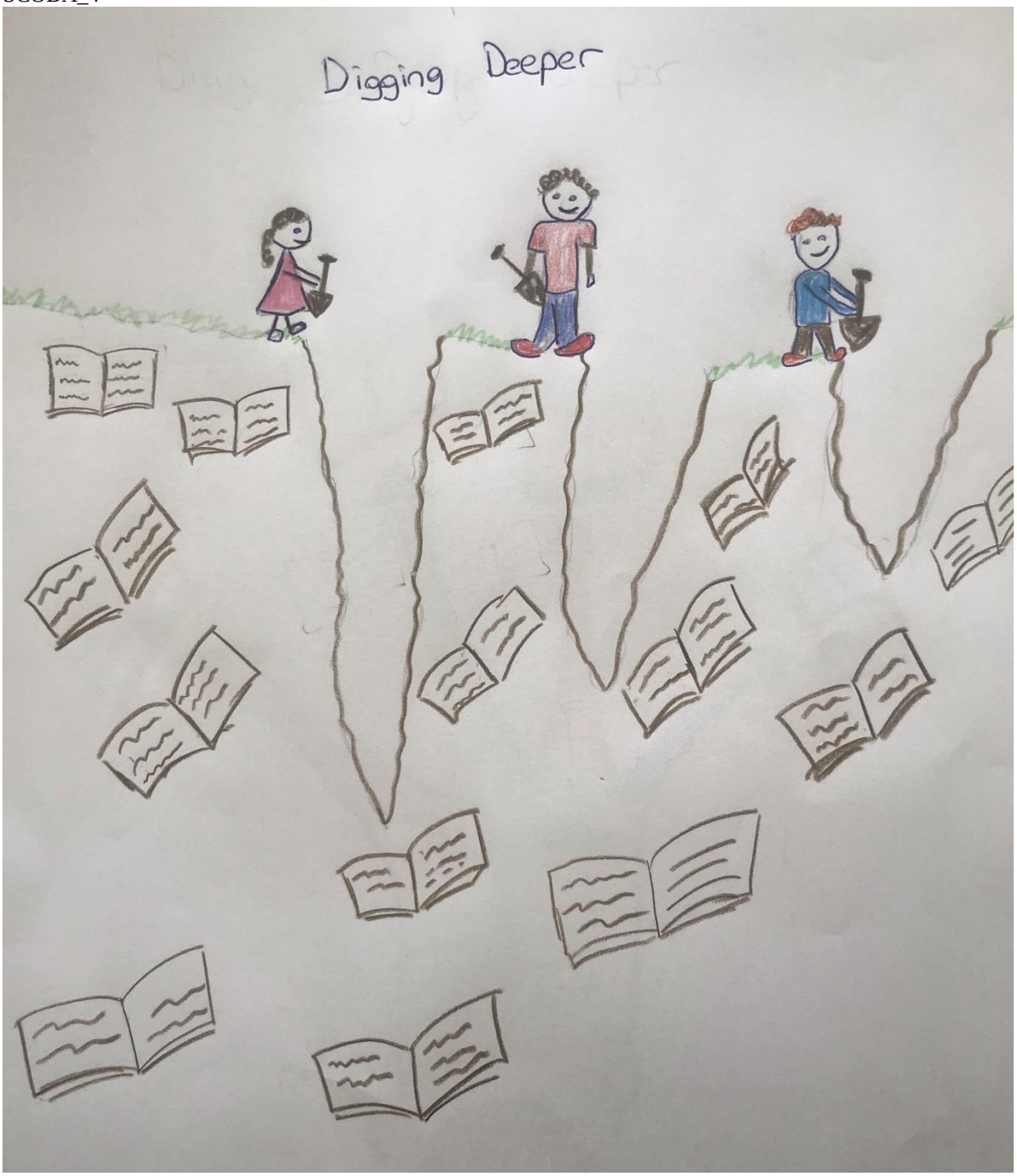
SCOBA_2



SCOBA_3



SCOBA_4



APPENDIX B

The assumptions of the one-way repeated ANCOVA test were met in this study. The normality assumption was satisfied as indicated by the Shapiro-Wilk's test, showing that the residuals were normally distributed within each group (ps < .05). The homogeneity of variance assumption was met, as there was equal variance across the groups, as confirmed by Levene's test (ps < .05). Additionally, the data did not contain any outliers, and Cook's distance did not violate the assumption. As these results suggest that the one-way repeated ANCOVA tests conducted in this study were appropriate and reliable for testing the effects of the intervention on the four variables of interest (see Table 4).

Table 4. Descriptive Statistics for Pre- and Post-Test Measures of Four Dependent Variables in Experimental and Control Groups

				95% Confidence Interval			Shapiro-Wilk	
Variable	**Group**	**Mean**	**SE**	**Lower**	**Upper**	**SD**	**W**	**p**
Pre_reading_Score	Experimental Group	10.81	0.77	9.23	12.40	4.01	0.97	0.570
	Control Group	11.32	0.52	10.26	12.38	2.58	0.97	0.610
Post_reading_Score	Experimental Group	13.74	0.57	12.56	14.92	2.98	0.97	0.612
	Control Group	13.76	0.42	12.90	14.62	2.09	0.94	0.150
Pre_Reflective_Reading_Score	Experimental Group	3.33	0.40	2.50	4.16	2.09	0.94	0.144
	Control Group	2.80	0.29	2.20	3.40	1.44	0.93	0.106
Post_Reflective Reading Score	Experimental Group	4.63	0.33	3.95	5.31	1.71	0.96	0.349
	Control Group	4.72	0.32	4.06	5.38	1.59	0.96	0.411
Pre_RQ_Reflection	Experimental Group	12.70	0.49	11.69	13.71	2.55	0.96	0.284
	Control Group	13.52	0.40	12.69	14.35	2.00	0.96	0.419
Post_RQ_Reflection	Experimental Group	16.11	0.47	15.15	17.07	2.42	0.97	0.573
	Control Group	14.80	0.38	14.01	15.59	1.91	0.98	0.835
Pre_RQ_CriticalReflection	Experimental Group	10.15	0.57	8.98	11.31	2.94	0.97	0.630
	Control Group	10.44	0.63	9.13	11.75	3.16	0.97	0.523
Post_RQ_CriticalReflection	Experimental Group	12.30	0.60	11.07	13.52	3.10	0.98	0.888
	Control Group	10.00	0.71	8.53	11.47	3.57	0.94	0.138

				95% Confidence Interval			Shapiro-Wilk	
Variable	**Group**	**Mean**	**SE**	**Lower**	**Upper**	**SD**	**W**	**p**

Note: The table presents descriptive statistics for the experimental and control groups' pre-and post-test measures of four dependent variables. The four variables include Reading Score, Reflective Reading Score, Critical Reflection, and Reflection. The table shows the mean scores, standard deviation, standard error of the mean, 95% confidence intervals, skewness, and kurtosis for each variable in both groups. The Shapiro-Wilk test for normality is also reported for each variable. These statistics provide a summary of the distribution of scores for each variable and the variability and shape of the distribution in each group. This information can help evaluate the intervention's effectiveness and determine if there are any significant differences in the mean scores of the dependent variables between the experimental and control groups. And The CI of the mean assumes sample means follow a t-distribution with N - 1 degrees of freedom