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A bridge between home and school built through books: a journey into critical thinking, problem solving, and creativity *

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Abstract

The aim of this study is to examine the development of critical thinking, problem-solving, and creativity skills among 7th-grade students from low socioeconomic backgrounds, and to analyze this developmental process using children's books within the framework of the flipped learning model. In this context, action research, one of the qualitative research methods, was employed. The study was conducted over a period of 12 weeks during the fall semester of the 2022–2023 academic year at a secondary school with a low socioeconomic profile, located in a central district of a major city in the western part of the Eastern Anatolia region. The participants consisted of twenty 7th-grade students who exhibited deficiencies in critical thinking, problem-solving, and creative thinking skills, selected through criterion sampling. Different data collection tools were utilized at various stages of the research. While the Cornell Critical Thinking Test and the Torrance Tests of Creative Thinking were used to gather quantitative data, qualitative data were collected through observation notes, the researcher's diary, audio and video recordings, and interviews with teachers, students, and families, as well as student projects created based on the activities related to the books. Quantitative data were analyzed using correlation analysis and the Kendall's W test to determine inter-rater agreement. Qualitative data were analyzed using the thematic analysis method. As a result of the analyses, it was concluded that the students showed improvement in their critical thinking and problem-solving skills. Although there was also an improvement in their creative thinking skills, it was not as pronounced as the other two skill areas.

Keywords

Critical thinking
Problem solving
Creativity
Flipped learning
Children's books
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Introduction

Today, the worlds of education and business operate in a rapidly evolving environment. Technological advancements, globalisation, and social changes continue to reshape individuals' expectations and needs. In this process of transformation, the traditional knowledge-based approach to education is increasingly being replaced by a model centered around 21st-century skills. These skills emphasize the development of flexibility, communication, critical thinking, problem-solving, creativity, collaboration, and digital literacy rather than the mere acquisition of basic academic knowledge (Demir & Yılmaz, 2019). They are considered key factors not only in academic achievement but also in success within the business world and everyday life.

Wagner (2008) observes that 21st-century skills are increasingly valued in the business world. He notes that traditional job roles and business models are evolving, and that technological advancements and global competition demand new skill sets. Employers now seek candidates who possess not only academic knowledge but also flexibility, critical thinking, creativity, teamwork, and problem-solving skills. In this context, it is critical for the education system to focus on developing 21st-century skills. Schools and universities should therefore not only provide students with academic knowledge but also foster environments that support the development of real-world application skills. Methods such as project-based learning, collaborative work, and technology integration can play an effective role in helping students acquire these skills (Anderson & Krathwohl, 2001).

In light of all this, it can be said that as 21st-century skills gain increasing importance in both education and business, their effective development is vital for enhancing individual success and societal competitiveness. Therefore, educational institutions and businesses have focused on 21st-century skills and have sought to classify them in order to adapt to changing dynamics and promote success. Accordingly, various institutions, organizations, and individual researchers have worked to classify these skills and conceptualize them within a coherent framework. Numerous classifications in the literature aim to support not only individuals' academic success but also their ability to function effectively in society (Fadel et al., 2015; Marzano & Heflebower, 2012; Partnership for 21st Century Learning [P21], 2015; OECD, 2013 Pedro, 2006; Wagner, 2008). Among these conceptual frameworks, the most widely accepted is the Partnership for 21st Century Learning Framework (P21, 2015), developed by Battelle for Kids (P21, 2015). The skills covered by this framework are shown in Figure 1.

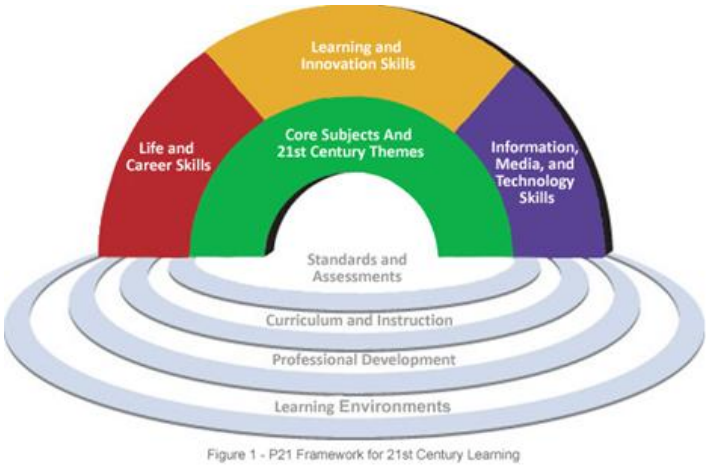

Figure 1. 21st century Skills P21 Framework

The Partnership for 21st Century Learning Framework (P21) is an initiative designed to foster 21st-century skills through international collaboration. It was developed to strengthen education systems, equip students for success in a global context, and promote social and economic development. The framework encourages the adoption of innovative approaches to enhance students' knowledge and skills, with a strong emphasis on digital technologies and access to information. It supports international

collaboration aimed at improving educational quality and preparing students more effectively for the future. Therefore, integrating these skills into educational settings that prepare individuals for life is essential.

It is well known that curricula play a vital role in developing 21st-century skills and preparing students for the future. For this reason, it is considered essential that contemporary curricula adopt a student-centred and skills-based approach rather than relying on traditional lesson planning. These programmes are believed to encourage students' active participation in lessons, promote collaboration and teamwork, and offer opportunities to enhance problem-solving, creative thinking, and critical thinking skills—thus better preparing students for real-life challenges. Güler at al. (2017) emphasized that integrating technology into curricula can help students acquire 21st-century skills, as digital tools provide interactive learning experiences, foster creativity, and enable students to build global connections. Additionally, digital literacy skills are thought to enhance students' capacity to process and evaluate information effectively. However, Başaran et al. (2021) highlighted the importance of providing teachers with proper training and support to ensure the successful implementation of curricula that promote 21st-century skills. They also noted that it is crucial for teachers to employ innovative methods and strategies to help students develop these competencies. In this respect, it is believed that 21st-century skills should be at the core of curricula. To prepare students for the future and guide them effectively, curricula should adopt a flexible, innovative, and skills-based approach. This will enable students to adapt to changing global conditions and succeed in various fields.

Updates in curricula introduce new trends by influencing teaching methods and reshaping teacher roles. Digital learning models and technology-based instructional methods transcend traditional classroom settings, offering students flexibility, personalized learning experiences, and interactive content (Alsancak Sırakaya, 2015). These approaches allow students to progress at their own pace and support various learning styles. Moreover, digital platforms enable access to global resources and foster international connections. Integrating digital learning models with 21st-century skills can better prepare students for life, equipping them to succeed in the future workforce and society. These integration efforts not only enhance students' ability to use technology effectively but also strengthen critical thinking, creativity, and problem-solving skills (Dilekçi, 2020). The Covid-19 pandemic, which had a significant global impact in 2020, prompted the Turkish Ministry of National Education to initiate reforms in the education system due to the impossibility of face-to-face instruction. Efforts were made to prevent disruptions in the educational process through the rapid implementation of web-based teaching applications. This shift brought distance education to the forefront and enabled the continuation of instruction via various digital platforms. During this period, both students and teachers had to quickly adapt to these innovations, and instruction began to be delivered using web-based tools in virtual classroom settings. The effective use of information and communication technologies made it possible to implement student-centered teaching methods. As a result of the pandemic, the transition to distance education and the integration of digital teaching materials into the curriculum brought a renewed perspective to the education system.

Extraordinary circumstances, such as the Covid-19 pandemic, have made distance education both widespread and essential. Distance education is an educational model that allows students to access learning through the internet and digital technologies, typically when they are not physically present in a classroom or school (Yıldırım, 2020). This model offers students flexibility and accessibility, enabling them to continue their education regardless of geographic, physical, or temporal constraints. The rise of distance education has been largely driven by technological advancements, including the proliferation of the internet, the development of digital platforms, and improvements in information and communication technologies. In addition, crises such as epidemics and natural disasters have further highlighted the importance of this model. However, one key criticism of distance education is that it may hinder the classroom environment and interpersonal communication that are inherent in face-to-face education. This concern has led to the emergence of alternative approaches, such as blended

learning and the flipped classroom model, which aim to combine the advantages of both traditional and online education.

Blended learning is a model that combines traditional classroom instruction with digital technologies (Bonk & Graham, 2006). It provides students with face-to-face interactive learning experiences while also supporting learning through online platforms (Garrison & Vaughan, 2008). Flipped learning is an instructional approach that redefines the traditional classroom process. In this model, students engage with course content at home through pre-recorded videos or other online materials, while classroom time is dedicated to in-depth discussions, interactive activities, and hands-on practice. The goal of flipped learning is to increase student interaction in the classroom and enhance the overall learning experience (Picciano, 2017). In contrast to the traditional approach—where new topics are introduced in class and homework is completed at home—the flipped model reverses this sequence. Students learn new material at home and then work collaboratively in class to deepen their understanding and apply their knowledge. This approach enables personalized learning and allows students to progress at their own pace, while promoting more student-centered activities during classroom time. While flipped learning incorporates digital technologies and online resources to enhance student learning, it also highlights the teacher's role as a guide and facilitator within the classroom (Osguthorpe & Graham, 2003). As such, this model is considered to support the development of 21st-century skills such as critical thinking, problem-solving, and creativity.

A review of the literature reveals that numerous studies have examined 21st-century skills in various contexts, including listening instruction through web-based activities (Kır, 2024), curriculum design (Dolmacı, 2023), Generation Z's perceptions of 21st-century skill competencies (Karabaş, 2023), pre-service teachers' learning skills (Eken, 2023), teachers' motivation to teach these skills (Baba, 2022), and pre-service teachers' entrepreneurship (Kaya, 2020).

There are studies examining the effect of the flipped classroom model on the academic achievement of pre-service teachers (Eken, 2023); the effect of the flipped classroom model on students' course attitude, self-regulated learning and readiness (Erişmiş, 2023), its effectiveness on student achievement (Çelebi, 2023), its effect on students' high-level reading comprehension skills and attitudes towards reading (Kayan, 2023), the effect of the 5E model on the flipped learning model (Cumaoğlu, 2023), and its effect on writing skills (Harmankaya, 2023). However, as a result of the literature review, it was seen that the studies that carry 21st century skills into the learning environment using the flipped learning model and present teaching materials containing these skills are limited. Accordingly, in this study, students' critical thinking, problem solving and creativity skills are tried to be developed with lesson plans created by blending 21st century skills and basic language skills.

In this context, the main problem is 'How do the action plans implemented according to the Flipped Learning Model contribute to the development of critical thinking, problem solving and creativity skills of 7th grade students with low socioeconomic level?' From a methodological perspective, this study is designed as action research and is considered valuable for demonstrating, in a step-by-step and detailed manner, classroom practices that teachers can implement to help students improve their higher-order thinking skills, such as critical thinking, problem-solving, and creativity—especially for those who are perceived to be lacking in these areas.

Purpose

The main purpose of this study is to examine whether lesson plans developed using children's books within the framework of the Flipped Learning Model enhance students' critical thinking, problem-solving, and creativity skills. In line with this purpose, the following sub-questions were addressed:

- In what ways do the implemented teaching activities support the development of critical thinking skills among students from low socioeconomic backgrounds?
- How do these activities contribute to improving their problem-solving skills?
- How do the activities foster students' creativity?

Method

Research Model

In this study, action research, one of the qualitative research designs, was employed. The defining characteristic of the qualitative approach used here is its focus on collecting data through face-to-face interaction, observation, and interviews in a natural setting, rather than using standardized measurement tools (Creswell, 2014). Action research is a type of inquiry that can be planned, organized, and shared with others (Johnson, 2014).

Action research is a method commonly used by teachers to address the problems they encounter. However, it would be inaccurate to suggest that all teachers or students face the same problems. In this study, the researcher conducted action research to address a specific problem identified in their own classroom. Based on classroom observations and teaching experiences, the researcher noticed that while students were reading books, they often failed to grasp the intended messages, underlying themes, and were unable to apply what they read to real-life situations. The literature review revealed that reading comprehension is one of the most persistent problems in Turkish language education (Karacaoğlu & Karakuş, 2022; Karatay, 2014; Sayın & Takıl, 2023; Yiğit & Elkatmış, 2021), and this issue also negatively affects performance in other subjects. However, the rapid advancement of technology has led to the rise of 21st century skills, making it essential for students to develop these skills in a digital context and apply them in their daily lives. Today, students' frequent use of digital platforms and technology in their daily activities has made it necessary to integrate technology into teaching processes. Therefore, to foster the development of critical thinking, problem-solving, and creativity—skills that are central to 21st century education—activities were designed around the books students read, aiming to enhance these skills. In this context, the action research method was employed to intervene and support their continuous improvement every week.

Participants of the Study

Criterion sampling, a type of purposive sampling, was used to determine the participants of this study. 'Criterion sampling is a selection based on the fulfilment of predetermined criteria' (Büyüköztürk, 2012, p.91).

The participants of the study were 20 seventh-grade students from a low socioeconomic secondary school in one of the central districts of a metropolitan city in the western part of the Eastern Anatolia region, during the autumn term of the 2022-2023 academic year. The students' willingness to participate in the study was considered. In this regard, the researcher provided both the 'Voluntary Participation Form' and the 'Parental Consent Form,' which contained information about the research, to the students and their parents. Students and parents signed these forms indicating that they voluntarily participated in the research.

The selection of the school where the research would be conducted was influenced by the fact that it was the researcher's workplace, located in a socioeconomically disadvantaged area, and easily accessible. After selecting the school, the researcher applied for the necessary legal permissions. In this regard, ethics committee approval was obtained from Malatya İnönü University. At the same time, permission to conduct the research was obtained from Malatya Provincial Directorate of National Education, the institution to which the school was affiliated.

Data Collection Tools

In this study, the researcher employed multiple data collection tools to strengthen and support the findings. The data collection tools, and their specific purposes are detailed in Table 1.

Table 1. Data Collection Tools Used in the Research

Researcher	Students
Observation notes (Qualitative)	Torrance Tests of Creative Thinking (Quantitative)
Researcher's Diary (Qualitative)	Cornell Critical Thinking Test (Quantitative)
Camera Recordings (Qualitative)	Student Diary (Qualitative)
Audio Recordings (Qualitative)	Video Recordings During Lesson (Qualitative)
Parent interview forms	Student Worksheets (Qualitative)
Subject Teacher Interview Forms	Student Project Activities (Qualitative)
	Student Interview Forms (Qualitative)

In this study, which aimed to develop students' critical thinking, problem-solving, and creativity skills, data triangulation was employed through the use of multiple data collection tools. Both quantitative and qualitative data collection instruments were utilized, with the intention of using quantitative data to support the qualitative findings and thus strengthen the overall results. For quantitative data, the Torrance Tests of Creative Thinking and the Cornell Critical Thinking Test were administered. For qualitative data, a variety of sources were used, including the researcher's journal, student journals, observation notes, video recordings of the lessons, audio recordings of lessons and interviews, student worksheets, student activity projects, parent interview forms, and interview forms conducted with subject-area teachers.

Quantitative Data Collection Tools

1. Torrance Creative Thinking Test

In 1967, Torrance developed the Torrance Test of Creative Thinking based on its application to 10,127 individuals from various age and occupational groups (Aslan, 2001). The test consists of two main forms: Verbal and Figural, each with Forms A and B. The Verbal Form includes seven activities, with five minutes allocated for each, totalling 35 minutes. The Figural Form comprises three activities, with ten minutes allotted per activity, for a total of 30 minutes. In the pre-tests of this study, Booklet B of both the Verbal and Figural Forms was used. To prevent students from recalling test items or producing unoriginal responses influenced by others before the post-test, Booklet A of both forms was administered in the post-tests.

2. Cornell Critical Thinking Test

The Cornell Critical Thinking Test was developed by Ennis and Millman in 1985 and consists of two separate levels: Level X and Level Z. Level X was designed for primary, secondary, and high school students, while Level Z was intended for gifted high school students, as well as undergraduate and graduate students. The test comprises four sub-dimensions: making inferences through inductive reasoning, evaluating the reliability of observations and sources, identifying assumptions in statements, and making inferences through deductive reasoning. The test includes a total of 71 questions. Each correct answer is awarded 1 point, while incorrect answers receive 0.

3. Personal Information Form

Through the personal information form, data were collected about the students participating in the study and their families. The form included questions about the family's monthly income level, parents' educational background, and whether the students had siblings currently attending school. Additionally, the researcher obtained further information from student identification forms she had prepared for the school guidance service, as she had been serving as a Turkish language teacher and class advisor for three years. Based on all of this information, it was determined that the students came from a low socioeconomic background.

Qualitative Data Collection Tools

1. Researcher and Student Diaries

The researcher kept a diary throughout the implementation process, dating each entry and recording her observations on both the process and student behavior. In addition to maintaining her own diary, the researcher also asked the study participants to keep diaries. According to Yıldırım and Şimşek (2016), diaries kept by both researchers and participants can be useful in clarifying the research process. For this reason, the researcher began keeping a diary one week prior to the implementation and continued until its conclusion. Her entries included not only reflections on the process itself but also information obtained from the thesis monitoring committee and the validity committee. The diary consisted of a total of 35 pages. An overview of the researcher's diary entries and their corresponding dates is presented in Table 2.

Table 2. Researcher Diary: Dates and Content

Diary History	Diary Content
01.11.2022	Distribution of parental consent forms and voluntary participation forms
02.12.2022	Introducing Web.2.0 tools
05.11.2022	Validity committee meeting-1
07.11.2022	Administration of the Torrance Creative Thinking Pre-test
08.11.2022	Administration of the Cornell Critical Thinking Pre-test
14.11.2022	Implementation – Week 1
16.11.2022	Validity committee meeting-2
17.11.2022	Supplementary session for absent students
21.11.2022	Implementation – Week 2
23.11.2022	Interview-1
25.11.2022	Validity committee meeting-3
28.11.2022	Implementation – Week 3
29.11.2022	Validity committee meeting-4
30.11.2022	Supplementary session for absent students
01.12.2022	Interview-2
05.12.2022	Implementation – Week 4
07.12.2022	Validity committee meeting-5
08.12.2022	Supplementary session for absent students
12.12.2022	Implementation – Week 5
14.12.2022	Validity committee meeting-6
15.12.2022	Supplementary session for absent students
16.12.2022	Interview-3
19.12.2022	Implementation – Week 6
21.12.2022	Validity committee meeting-7
22.12.2022	Supplementary session for absent students
26.12.2022	Implementation – Week 7
28.12.2022	Validity committee meeting-8
29.12.2022	Supplementary session for absent students
30.12.2022	Interview-4
02.01.2023	Implementation – Week 8
04.01.2023	Validity committee meeting-9
05.01.2023	Supplementary session for absent students
09.01.2023	Implementation – Week 9
10.01.2023	Validity committee meeting-10
11.01.2023	Interview-5
12.01.2023	Administration of post-tests

The researcher also asked the student participants to keep diaries; however, they did not maintain their diaries consistently. Therefore, the student diaries were excluded from the analysis.

2. Observation Notes

Observation notes refer to the researcher's records of classroom activities and student behavior throughout the implementation process. These notes were created by documenting what occurred during each lesson. The observation method employed in this study was participant observation. According to Güler et al. (2013, p. 105), "Participant observation refers to a method in which the purpose of the researcher's involvement in the lesson is known." In this study, the researcher also served as the Turkish language teacher for the participant students and had informed them that the study was being conducted as part of her doctoral dissertation, indicating that a participant observation approach was followed. The researcher's observations concluded with the end of the implementation process. During this period, special attention was paid to students' reactions to critical thinking, problem-solving, and creative thinking activities related to the book they were reading, as well as how their responses evolved from week to week. Additionally, instances where students built on each other's ideas and developed new perspectives were also noted.

3. Student Interview Forms

In this study, a semi-structured interview form was used to gather students' opinions about the books they read, and the activities designed based on those books. The form included questions about the students' views on the book, the activities, classroom practices, teaching materials, and the Web 2.0 tools that were used during the implementation. Detailed feedback was collected regarding the activities related to each chapter of the book, particularly those aimed at enhancing critical thinking, problem-solving, and creativity. Students were also asked to evaluate specific sections of the book, propose alternative solutions to the problems presented, introduce a new character, and critique the parts they disliked. Following the completion of the book, five interviews were conducted at two-week intervals. In doing so, the researcher aimed to ensure data variety. The questions used in the student interviews are presented below:

1. What are your thoughts about the book?
2. Is there anything in the book you would like to change? If so, how would you change it?
3. What was your favourite part of the book? Why?
4. What part of the book did you like the least? Why?
5. How did the main character solve the problems they faced?
6. If you were in the main character's place, how would you solve the problems?
7. How do you usually deal with problems in your daily life?
8. Did you find the activities related to the book useful? Which application or Web 2.0 tool did you enjoy the most?
9. Did the activities related to this book influence your reading habits, reading comprehension, or how you think about what you read? If so, can you describe any changes in your perspective?

The interview questions prepared for the students were asked at the end of each book, in relation to the activities conducted. Details of the student interviews are presented in Table 3.

Table 3. Student Interview Dates and Times

Student Interview	Student Interview Date	Student Interview Duration (mm:ss)
Interview 1	23.11.2022	35:52
Interview 2	29.11.2022	25:23
Interview 3	13.12.2022	27:28
Interview 4	27.12.2022	20:03
Interview 5	10.01.2023	28:41

According to Table 3, the total duration of the interviews was 137 minutes and 45 seconds. After the interviews, the researcher transcribed and analyzed the texts, using the results to inform updates to the action plans. These interviews were also utilized in the findings section of the study.

4. Parent Interview Form

Prior to the implementation, interviews were conducted with the families of the students to assess their current approaches and attitudes regarding critical thinking, problem-solving, and creativity skills. A single representative from each family was interviewed for approximately 5–10 minutes. The interview questions were shared with families beforehand, and input from other family members was encouraged. On the scheduled day, the designated family representative was interviewed, and all sessions were audio recorded. The total interview time with families amounted to 286 minutes.

The following questions were asked during the interviews:

- Do you have conversations with your child at home? What topics do you most frequently discuss?
- Can your child freely express their ideas and thoughts to you or other family members?
- Do you consider your child's opinions when making family decisions? If so, how are those opinions reflected in the final decisions?
- How open is your family environment to different ideas and perspectives?
- When faced with small problems, does your child attempt to solve them independently, or do they immediately seek help from you?
- Are there any activities you do at home to support your child's artistic or creative abilities?
- Do you include games, books, or activities at home that encourage your child's imagination?
- When your child encounters new information, do they accept it immediately, or do they consult you for clarification or discussion?

5. Interview Form with Subject Teachers

In this study, a semi-structured interview form was used to gather students' opinions about the books they read, and the activities designed based on those books. The form included questions about their thoughts on the book, the activities, in-class practices, instructional materials, and the Web 2.0 tools utilized. Students were asked detailed questions about the activities linked to specific chapters in the book, particularly those aiming to develop critical thinking, problem-solving, and creativity skills. They were also invited to evaluate specific parts of the book, suggest alternative solutions to the problems presented, introduce a new character, and reflect on the sections they disliked. After completing the book, a total of five interviews were conducted at two-week intervals to ensure data diversity. The interview questions posed to the students are presented below:

- Do students ask questions to you or to their peers during the lessons? What is the nature of these questions?
- Are students able to develop different perspectives on the topics discussed in class?
- When faced with a problem during the lesson, do students attempt to generate immediate solutions? Are they able to develop different problem-solving strategies?
- Are students able to generate creative ideas during your lessons?
- Are students able to use critical thinking skills in digital environments? Do they use digital tools solely as consumers?

6. Camera Recordings of the Lesson Process

The research implementation process was recorded using a video camera. Since the researcher also served as the teacher during the implementation, the camera was mounted on a tripod and positioned to capture the entire classroom. Video recordings were made for two hours each week, covering two class periods on Mondays. After each observation day, the recordings were regularly backed up by copying them to a computer and an external USB drive. Each recording was dated and archived in weekly folders. Throughout this process, the video recordings were reviewed regularly to identify emerging themes.

The primary data source in this study was the video recordings of the teaching process. These recordings were used to expand and support the researchers' observation notes. Since the researcher was also the practitioner, it was not possible to take detailed observation notes during the lessons. The recordings were made using a Panasonic camera mounted on a tripod. The recording period spanned from November 1, 2022, to January 9, 2023, starting in the first week of the implementation. On each recording day, the videos were transferred to a computer and backed up to an external drive. The total duration of the recordings was 636 minutes. During each lesson, the camera was positioned next to the teacher's desk to capture the classroom environment.

The dates and durations of the camera recordings conducted during the lesson periods are presented in Table 4.

Table 4. Dates and Recording Durations of Classroom Video Recordings

History	Duration (dd))
11.11.2022	75
21.11.2022	69
28.11.2022	71
05.12.2022	64
12.12.2022	71
19.12.2022	73
26.12.2022	71
02.01.2023	70
09.01.2023	60

Video recordings captured throughout the research process served as the primary data source. The researcher integrated the findings from these recordings with other data sources, including interviews, student assignments, projects, observation notes, researcher diaries, the Torrance Creative Thinking Test, and the Cornell Critical Thinking Test.

7. Audio Recordings

In this study, to prevent data loss, both video and audio recordings were made during the implementation process. The audio recordings were transferred to the computer immediately after each lesson and then backed up to an external drive for safekeeping. Following each lesson, the audio recordings were transcribed, and the transcripts were analyzed to support the reporting of the findings.

Audio recordings were also made during participant interviews conducted at two-week intervals. After each interview, the recordings were transferred to an external drive, transcribed, and incorporated into the research report. The dates and durations of the audio recordings are presented in Table 5.

Table 5. Dates and Durations of Audio Recordings

History	Duration (dd))
11.11.2022	75
21.11.2022	73
23.11.2022	35
28.11.2022	73
01.12.2022	25
05.12.2022	64
12.12.2022	71
16.12.2022	27
19.12.2022	75
26.12.2022	72
30.12.2022	20
02.01.2023	72
09.01.2023	62
11.01.2023	28

8. Student Activity Sheets and Projects

One of the data sources of this research consists of activities, worksheets, and projects created by students using Web 2.0 tools as part of the classroom tasks. Cavkaytar (2009) states that students' work can serve as a valuable data source, as it reflects their developmental progress. Student activities were collected through worksheets and were also monitored via the EBA virtual classroom and WhatsApp. These student works are considered important for ensuring the validity of the research. Student assignments and projects were also incorporated into the research report.

9. Preparation and Implementation Process of Action Plans

At this stage, the researcher developed action plans to foster critical thinking, problem-solving, and creativity skills based on the books that had been read. These action plans were then put into practice through various activities. Therefore, this phase represents the core component of action research (Papatğa, 2016). The data collected during this phase were reviewed with the validity committee, and action plans for the following week were developed accordingly. Following the implementation of each action plan, the current situation was re-evaluated. Based on the newly collected data, either a new action plan was formulated, or existing plans were revised during the validity committee meetings. The research process was structured around this continuous cycle. The cycle of action planning in this study is illustrated in Figure 2.

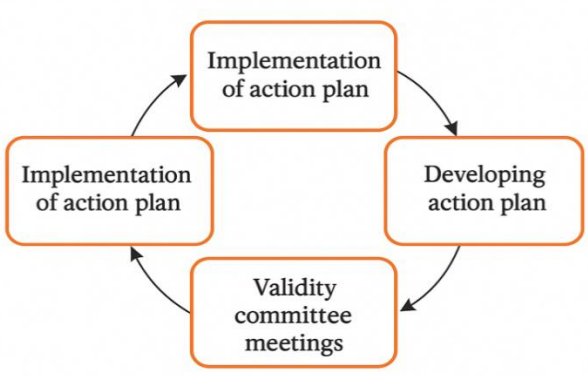

Figure 2. Cycle of the Implementation Process

This cycle was followed throughout the implementation process. The process began with identifying the participants. Next, the necessary approvals were obtained through voluntary participation and parental consent forms, ensuring that all student participation was based on informed consent. Subsequently, quantitative data collection tools were administered, and the first book to be read was distributed to the students. Once the students had read the assigned chapters, they completed the activities designed to enhance their critical thinking, problem-solving, and creative thinking skills.

During this phase, the researcher put the developed action plans into practice. Details of this process are presented in Table 6.

Table 6. Dates of Action Plans and Activities

Action	Action Week and Date	Action Events
1	Week 1/01 November-04 November 2022	Giving voluntary participation form and parental consent form
2	Week 2/07 November-11 November 2022	Introduction of Web 2.0 tools, pre-tests, Validity Committee Meeting-1
3	Week 3/14 November-18 November 2022	Practice 1, Additional Lesson Plan 1, Validity Committee Meeting 2
4	Week 4/21 November-25 November 2022	Practice 2, Interview 1, Validity Committee Meeting 3
5	Week 5/28 November-02 December 2022	Practice 3, Additional Lesson Plan 2, Validity Committee Meeting 4, Interview 2
6	Week 6/05 December-09 December 2022	Practice 4, Additional Lesson Plan 3, Validity Committee Meeting 5
7	Week 7/12 December-16 December 2022	Practice 5, Additional Lesson Plan 4, Validity Committee Meeting 6, Interview 3
8	Week 8/December 19-December 23, 2022	Practice 6, Additional Lesson Plan 5, Validity Committee Meeting 7
9	Week 9/December 26-December 30, 2022	Practice 7, Additional Lesson Plan 6, Validity Committee Meeting 8, Interview 4
10	Week 10/02 January-06 January 2023	Practice 8, Additional Lesson Plan 7, Validity Committee Meeting 9
11	Week 11/09 January-13 January 2023	Practice 9, Validity Committee Meeting 10, Interview 5
12	Week 12/16 January-20 January 2023	Application of post-tests

As shown in Table 6, the implementation process spanned a total of 12 weeks. A total of 12 action plans were prepared, with one plan implemented each week. In accordance with these action plans, the implementation was conducted, and data were collected and analyzed.

1st Action Plan (Week 1: November 1–5, 2022)

Since the implementation took place at the school where the researcher works, and the students were selected through purposive sampling, the researcher first distributed voluntary participation forms to the students. Once the students who volunteered were identified, parental consent forms were sent to their families, and the necessary permissions were obtained. An introductory lesson was then conducted with the participating students, during which the Web 2.0 tools to be used in the implementation process were introduced.

2nd Action Plan (Week 2: November 7–11, 2022)

Following the identification of participating students, the Torrance Creative Thinking Test (Form B) was administered as a pre-test to assess their level of creative thinking skills. The Cornell Critical Thinking Test was also administered as a pre-test to determine the students' critical thinking and problem-solving skills. In addition, the first meeting with the Validity Committee was held during this week (Validity Committee Meeting 1 – November 5, 2022).

3rd Action Plan (Week 3: November 14–18, 2022)

In this stage, the researcher initiated the implementation process, conducting the first classroom application. The students engaged in activities based on the book *Grandpa's Grocery Store*. For those who were unable to participate, the researcher organized and conducted an additional session. The activities incorporated components of critical thinking, problem-solving, and creativity, derived from the literature and developed by the researcher. A balanced number of activities were designed for each skill, encouraging students to engage in higher-order thinking and develop their digital competencies. These skills were targeted through various activities, including expressing thoughts on the book's title, visuals, and content; proposing solutions to the problems faced by the characters; writing a new ending or introducing a new character; and designing a book cover using Web 2.0 tools to be shared in virtual classrooms. The activities took the form of open-ended questions, visual design tasks, Web 2.0 tool usage, group work, and collaborative projects. A meeting was held with the Validity Committee to evaluate the week, and the action plan was revised and prepared for the following week (Validity Committee Meeting 2 – November 16, 2022).

4th Action Plan (Week 4: November 21–25, 2022)

In this phase, the researcher carried out the second activity session and facilitated student engagement in activities based on the second half of *Grandpa's Grocery Store*. Following this, the first round of student interviews was conducted to collect their reflections on the process. Afterwards, the third Validity Committee meeting was held, and the subsequent action plan was developed based on the decisions made (Validity Committee Meeting 3 – November 25, 2022).

5th Action Plan (Week 5: November 28 – December 2, 2022)

During this week, students participated in activities related to the second book, *Little Black Fish*. These activities were designed using a framework that incorporated critical thinking, problem-solving, and creativity components derived from the literature. The activities aimed to foster skills such as questioning, interpreting, evaluating, generating logical solutions, identifying problems, flexible thinking, and idea generation. Students engaged in a variety of tasks, including resolving the protagonist's challenges during the journey, imagining themselves in the protagonist's role, writing a continuation of the story, watching a thematically similar film, and comparing it with the book. Three students were unable to participate in the activities. Subsequently, based on the decision made during Validity Committee Meeting-4 (29.11.2022), an additional lesson plan was developed for the students who missed the session. In accordance with this plan, these students were given the opportunity to complete the activities (Additional Lesson Plan-2, 30.11.2022). During this week, semi-structured interviews were conducted during one class hour to gather students' feedback on the activities (Interview-2, 01.12.2022). Additionally, the third book, The Diary of an Untitled Youtuber, was distributed to the students, who were instructed to read the first half of the book over the course of one week.

6th Action Plan (Week 6: December 5–9, 2022)

During this week, students participated in activities based on The Diary of an Untitled Youtuber. The activities included empathizing with the characters, evaluating their behaviors, and organizing a kindness campaign as a group activity inspired by the actions of the characters in the book. The students' work was evaluated, and it was noted that two students were absent from the session. In line with the decision taken during Validity Committee Meeting-5 (07.12.2022), an additional lesson plan was prepared to support the participation of these students. The prepared supplementary lesson plan was carried out with two students (Supplementary lesson plan-3, 08.12.2022). Then, the students were asked to read the second half of the book for one week.

7th Action Plan (Week 7: 12–16 December 2022)

During this week of the research, the students carried out the activities prepared for the second half of the book The Diary of an Untitled Youtuber. Four participant students were absent from this session. Based on the decision made during Validity Committee Meeting-6 (14.12.2022), an additional lesson plan was prepared and implemented with these students (Additional Lesson Plan-4, 15.12.2022). To gather students' opinions on the activities conducted during the week, semi-structured interviews were held during one class hour (Interview-3, 16.12.2022). Additionally, the fourth book to be read, The Ball Hanging in the Air, was distributed to the students. They were instructed to read the first half of the book over the course of one week.

8th Action Plan (Week 8: 19–23 December 2022)

In this week of the research, the students completed activities prepared for the first half of the book The Ball Hanging in the Air. The story revolves around a mysterious knot that a group of friends attempts to unravel. Accordingly, students were presented with a variety of open-ended questions and group activities designed to foster problem-solving, creative thinking, and empathy. It was observed that three students were absent from this session. In line with the decision made during Validity Committee Meeting-7 (21.12.2022), an additional lesson plan was prepared for the three absent students. This plan was implemented with them on 22.12.2022 (Additional Lesson Plan-4). Afterwards, the students were instructed to read the second half of the book over the course of one week.

9th Action Plan (Week 9: 26–30 December 2022)

During this week of the research, the activities prepared for the second half of the book The Ball Hanging in the Air were implemented with the students. It was observed that four students were absent from the lesson. In line with the decision made during Validity Committee Meeting-8 (28.12.2022), an additional lesson plan was prepared for these students and implemented on 29.12.2022 (Additional Lesson Plan-6). To gather students' opinions on the activities conducted during this week, semi-structured interviews were held during one class hour (Interview-4, 30.12.2022). Subsequently, the final book to be read, Yuan Huan's Cabin, was distributed to the students, and they were instructed to read the first half of the book within one week.

10th Action Plan (Week 10: 2–6 January 2023)

During this week of the research, activities designed for the first half of the book Yuan Huan's Cottage were implemented with the students. These activities included open-ended questions, process-based writing exercises, and story creation using Web 2.0 tools, which were then shared in virtual classrooms. One student was absent during this lesson. In line with the decision made at Validity Committee Meeting-9 (04.01.2023), an additional lesson plan was prepared and implemented with the student (Additional Lesson Plan-6, 05.01.2023). Subsequently, the students were instructed to read and complete the second half of the book over the following week.

11th Action Plan (Week 11: 9–13 January 2023)

During this week, activities based on the second half of Yuan Huan's Cottage were carried out. It was observed that one student was absent. In line with the decision made at Validity Committee Meeting-10 (10.01.2023), an additional lesson plan was prepared and implemented with the student (Additional Lesson Plan-7, 11.01.2023). To gather students' opinions about the activities conducted during this week of the research, interviews were held with them during one class hour using a semi-structured interview form (Interview-5, 12.01.2023).

12th Action Plan (Week / 16 January–20 January 2023)

During this week of the research, the 'Torrance Creative Thinking Test, Figural Form A and Verbal Form A' was administered to the students as a post-test to assess their creative thinking levels after the implementation. Subsequently, the 'Cornell Critical Thinking Test' was administered to evaluate their levels of critical thinking and problem-solving skills.

In total, 30 lesson hours were allocated throughout the implementation process: 1 hour for teaching Web 2.0 tools, 3 hours for administering pre-tests, 18 hours for implementing the book-related activities, 8 hours for additional lesson plans, and 8 hours for administering post-tests.

10. Selection of Books

In the school where the researcher works, she regularly reads books to her students and organises interviews about books. However, during the process, she observed that students read the books, but they do not have a critical perspective to make sense of what the books want to give, and they lack creative problem-solving skills developed for the problems encountered in the books. For this reason, he was interested in this issue and believed that it should be investigated.

In this context, the researcher firstly conducted a field survey and asked colleagues and families with students at the secondary school level for the names of the books that students read the most. At the same time, he created a list by determining the books on the list of the most read books in the children's books category of various book sales sites. She read all the books in this list of 28 books and identified ten books that she thought would improve students' critical thinking, problem solving and creativity skills. While determining the books, the basic principles of children's literature were considered. Then, she prepared a form containing information about these books and summaries of the books and asked six experts who have studies on children's literature in the field of Turkish education for their opinions on the books and selected the five books with the highest scores. Information about these books is presented below:

- Yaşar, Ş. (2018). Grandpa’s Grocery Store. Taze Kitap.
- Behrengi, S. (2020). The Little Black Fish. Karpa Yayınevi.
- Sertbarut, M. (2022). Yuan Huan’s Hut. Tudem Yayıncılık.
- Sertbarut, M. (2019). The Diary of an Unknown YouTuber. Altın Kitaplar Yayınevi.
- Ak, B. (2022). The Ball Suspended in the Air. Günışığı Kitaplık.

Note: The English titles are unofficial translations provided for informative purposes only.

11. Preparation of Activities for Books

The starting point of the research is to try to develop students' critical thinking, problem solving and creativity skills through the books read. In this context, the selected books were read by the researcher and the sections that were thought to develop the 21st century skills of critical thinking, problem solving and creative thinking were noted in a word processor file with page numbers. It is also considered to develop students' 21st century skills through these books by including the use of technology in the digital world they were born into in educational environments. For this reason, the researcher took a seminar on the use of Web.2.0 tools in education in an online environment and made use of these Web.2.0 tools while planning the activities. In addition, the researcher planned activities that will develop students in this context by taking into account the gains that can be associated with critical thinking, problem solving and creativity among the reading gains in the Turkish Curriculum.

While planning the activities, various reading and learning strategies, methods, and techniques were taken into consideration, and the activities were diversified to address individual differences. During the preparation process, the researcher focused on developing students’ higher-order thinking, questioning, problem-solving, and creativity skills, and on designing activities that promoted collaborative work. In this context, emphasis was placed on enabling students to access information, use accurate and reliable sources, synthesise research findings, and apply them to real-life situations.

Accordingly, the activities related to the books were designed by integrating them with 21st-century skills.

12. Validity and Reliability

Unlike quantitative research, the validity and reliability of qualitative research are explained using the concepts of credibility, transferability, consistency, and confirmability instead of validity and reliability (Johnson, 2014). In this section, these concepts and the actions taken by the researcher to ensure them are explained in detail.

Credibility means that the research is meaningful, coherent, and logically structured for the readers. In order to enhance the credibility of the study, several strategies were employed. Since the researcher worked at the school where the implementation was carried out, they had the opportunity to conduct detailed observations of both the environment and the participants before and during the implementation process. Multiple data collection tools were used concurrently to ensure data triangulation and diversity. Additionally, data were gathered at various times throughout the process. To prevent data loss and ensure the richness of the data, the researcher made regular daily observations, took field notes, kept a diary, recorded the lessons using both video and audio devices, distributed printed worksheets to students and collected them at the end of each lesson. The methodology section provides a comprehensive account of each step, from identifying the research topic to the conclusion of the implementation phase, to further enhance the study's credibility. The data analysis procedures are also described in detail. Moreover, feedback and suggestions from the validity committee members, thesis monitoring committee members, and participants were continuously sought throughout the research process to support the credibility of the findings.

Transferability refers to the extent to which the findings of a qualitative study can be applied to other contexts or groups. As Miles and Huberman (2015, p. 279) state, "in order to determine whether the findings of a study can be generalized, many factors—from the research environment to the characteristics of the participants—should be described in detail." In line with this, the researcher provided detailed descriptions of the school, classroom, participants, implementation process, data collection tools and procedures, data analysis, and findings to enhance the study's transferability.

Consistency requires that the data remain consistent and stable over time and across conditions. Johnson (2014) emphasized that consistency among data is essential for ensuring reliability. To meet this criterion, multiple data collection tools were employed, and individuals responsible for different stages of the research were actively involved throughout the process. The researcher met weekly with validity committee members to analyze the data and update action plans accordingly. Furthermore, the researcher shared data, macro-level analyses, and details of the research process with the thesis monitoring committee every six months, obtaining their feedback and approval. During the reporting phase, the findings derived from different data sources were presented in a consistent and mutually reinforcing manner. The video and audio recordings of the implementation and interviews with participants were transcribed and checked by two experts for accuracy. In addition to qualitative data collection tools, quantitative tools were also utilized. It is believed that the results obtained from these quantitative tools helped enhance the relability of the research by supporting and strengthening the qualitative findings.

Confirmability addresses the objectivity of the research. While complete objectivity is rarely possible in qualitative research, it is essential to take measures that ensure findings are clearly derived from the data rather than researcher bias. Yıldırım and Şimşek (2016) argue that findings must be continuously supported and verified by the collected data to establish confirmability. In this study, both quantitative and qualitative data were used to achieve this aim. The Cornell Critical Thinking Test was employed to measure students' critical thinking skills, and the Torrance Test of Creative Thinking was used to assess their creative thinking levels. To collect qualitative data, tools such as observation, diaries, semi-structured interviews, video, and audio recordings were used, and the data obtained through these tools were presented in a complementary and supportive manner.

13. Research Environment

In qualitative research, it is essential to provide a detailed description of the research setting. This allows for a better understanding of the context in which the data were collected and helps to determine the relevance of the findings to similar environments (Ekiz, 2004).

The implementation of the study was conducted over a period of 12 weeks during the first semester of the 2022–2023 academic year, between November 1, 2022, and January 20, 2023. The research took place in a seventh-grade classroom of a public middle school located in a central district of a metropolitan city in the western part of the Eastern Anatolia Region. The school serves students from a low socioeconomic background and operates under the authority of the Ministry of National Education, with instructional hours from 08:30 to 15:25. The school also includes a kindergarten class. It is a five-story building located within a large garden and accommodates students through a transportation-based education system. The school was selected because it is where the researcher was currently employed, and the students' low socioeconomic status further supported this decision.

The classroom in which the research was conducted is located on the second floor and includes 20 students. The classroom is equipped with 18 student desks, one student cabinet, one teacher's desk, one teacher's chair, a smart board, and a classroom bulletin board. While the desks are designed for two students, each student sits individually. Upon entering the classroom, the student cabinet is immediately to the left, the teacher's desk and chair are directly in front, and the student desks are positioned on the right. During the lessons, a video camera was placed next to the teacher's desk to capture all students. The layout of the research environment is illustrated in Figure 3.

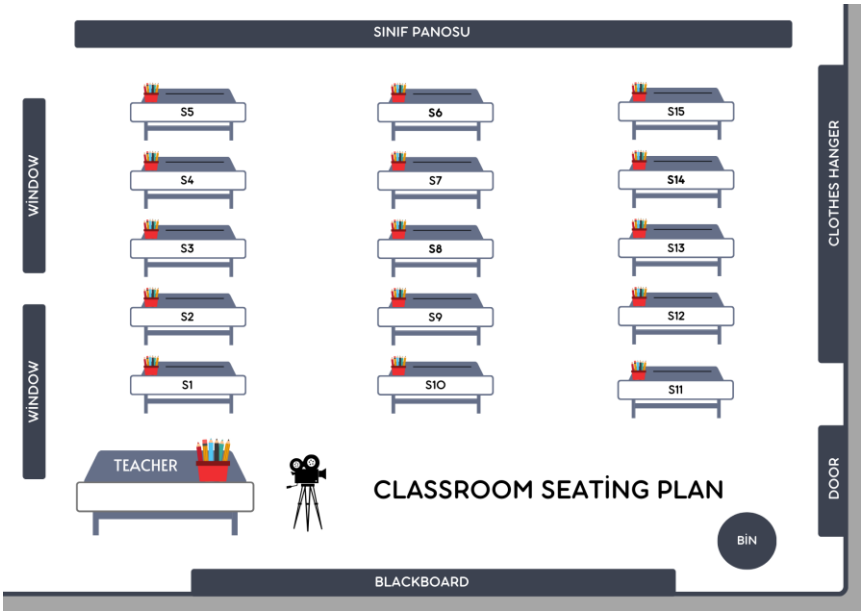

Figure 3. Classroom Seating Plan

Analysing the Data

1. Analysis of Qualitative Data

In this study, data were collected and analysed on a weekly basis. Based on the results of these analyses, action plans were developed. During the implementation process, classroom sessions were recorded each week using a video camera. The researcher transcribed these video recordings into written text every week. Macro-level analyses of the video data were conducted, and the findings were shared with the validity committee on a weekly basis. In addition to the macro analyses, interviews were conducted with the students every two weeks, specifically at the end of each book. The interviews were transcribed immediately after they were conducted and were presented to the validity committee biweekly.

The qualitative data were analysed using content analysis through thematic coding. Content analysis involves organizing and interpreting similar data under specific themes and concepts in a way that is understandable to the reader (Yıldırım & Şimşek, 2016). In qualitative research, data triangulation is used to prevent misinterpretations and to enhance the validity and reliability of the results (Stake, 1995). As Mayring (2011, p.148) notes, the purpose of triangulation in social sciences is not necessarily to obtain identical results across tools, but to interpret findings from multiple perspectives. Bogdan and Biklen (1998, p.104) also argue that data from multiple sources provide a deeper and more comprehensive understanding of the studied phenomenon. Accordingly, the study utilized multiple qualitative data collection tools, and the results were supported by quantitative instruments.

Video and audio recordings were analysed weekly at a macro level, and then micro-level analyses were conducted to identify moments where students demonstrated critical thinking, problem solving, and creativity. These segments were transcribed with time stamps (minutes and seconds) from the recordings. Student and researcher diaries were also reviewed after each session. Entries related to critical thinking, problem solving, and creativity were recorded and dated. Biweekly semi-structured interviews were conducted with students about the process, and these were documented both in written form and as video/audio recordings. The interviews were then coded for indicators of critical thinking, problem solving, and creativity. These procedures were aimed at developing a deep understanding of the phenomenon under investigation.

2. Quantitative Data Analysis

In addition to qualitative methods, the study employed quantitative instruments. The Cornell Critical Thinking Test was used to assess students' critical thinking and problem-solving skills, and the Torrance Test of Creative Thinking was used to measure their levels of creativity before the implementation phase.

Analysis of the Torrance Test of Creative Thinking

The researcher received formal training on scoring the Torrance Test of Creative Thinking. Following this training, she scored the students' pre-tests and entered the results into a Microsoft Excel file. Based on the class average, creativity levels were categorised into three groups: low, medium, and high. After the post-tests were administered, the researcher repeated the scoring and classification process. To ensure the reliability and validity of the scores, a second trained researcher independently scored the tests. The two sets of scores were compared for consistency. Students' pre- and post-test results were then compared individually to assess their development.

Analysis of the Cornell Critical Thinking Test

Because the copyright for the Cornell Critical Thinking Test is held by an educational company, the test was purchased based on the number of participants. After the test was administered, all student test sheets were sent to the company via mail. The company scored the tests and returned the results to the researcher.

Findings

This section evaluates the effectiveness of the strategies and practices implemented throughout the process on the development of students' critical thinking, problem-solving, and creativity skills.

Findings on the Contribution of the Teaching Activities to the Development of Critical Thinking Skills Among Students from Low Socioeconomic Backgrounds

As part of the implemented action plans, a total of 16 activities aimed at developing critical thinking skills were designed and applied using five children's books. To prevent data loss, both video and audio recordings were taken during student interactions. The data obtained from these recordings, along with students' written responses to the activities, were analyzed and are presented below.

Table 7. Findings on the Development of Critical Thinking Skills

Action Plan	Code	f
1. Action	Interpretation	9
	Giving importance to descriptive definitions	7
	Making inferences from data	12
	Supporting conclusions with reasons	20
	Creating solid reasons	9
	Free decision making	5
	Self-awareness	7
2. Action	Evaluation	8
	Separating irrelevant information	5
	Creating sound justifications	10
	Recognising inconsistent judgments	9
	Interpretation	11
	Making inferences from data and findings	7
	Supporting conclusions with justifications	15
	Including descriptive definitions	11
	Determining reasonable criteria and making decisions accordingly	3
	Solving the problem in a planned way	5
3. Action	Creating sound reasons	10
	Free decision making	29
	Determining rational criteria and making decisions accordingly	22
	Using spoken and written language effectively	3
	Interpretation	8
	Evaluation	11
	Including descriptive definitions	6
	Testing the reliability of information sources	4
	Recognising inconsistent judgments	9
	Being aware of one's own thoughts	9
	Analysis	12
	Supporting conclusions with reasons	15
4. Action	Interpretation	39
	Evaluation	56
	Making inferences	13
	Self-regulation	9
	Being aware of knowledge deficiencies	20
	Including descriptive definitions	11
	Supporting results with reasons	15
	Making decisions according to rational criteria	11
	Asking effective questions	6
5. Action	Analyzing	33
	Evaluating	40
	Making inferences	14
	Making decisions according to rational criteria	22
	Asking effective questions	8
	Questioning	20
	Interpreting	20

Table 7 provides an overview of the activities and their corresponding critical thinking components. Specifically, 2 activities were conducted in the first action plan, 3 in the second and fifth, and 4 in the third and fourth action plans. The codes and themes recurring across these activities were

grouped and analyzed collectively. The components targeted in designing the activities were identified during the literature review and are outlined in Table 7. In the first action plan, students were asked to reflect on the name and cover image of the book *Grandpa's Grocery*. They were then encouraged to discuss the profession chosen by the main character and share which profession they would like to pursue in the future. Additionally, they were prompted to invent a new food or beverage inspired by the protagonist's inventions. Students also initiated a charitable campaign, performing random acts of kindness for their peers (chosen by lottery), and shared their reflections through videos uploaded to the EBA virtual classroom. Subsequent activities followed a similar structure with content adapted to the themes of different books.

When evaluating the first action plan in terms of critical thinking, it was observed that while students were capable of offering justifications for their opinions and making basic inferences from the text, they struggled to distinguish irrelevant information and construct well-reasoned arguments. Their inference and interpretation skills were found to be at a moderate level, but their self-awareness and independent decision-making abilities were limited. Most students described events as they occurred without synthesizing or integrating them with personal insight. Many were unable to draw inferences based on available information. Sample student responses:

S2: "The cover of the book is impressive and eye-catching." (Written on activity sheet)

S3: "Why is he apprenticing with his grandfather when there are so many other professions?" (14:09 mm:ss)

When the second action plan was evaluated in the context of critical thinking, it was noted that students once again tended to describe the current situation without offering their own analysis or interpretation. Their responses lacked depth and were not supported by robust reasoning. While there was a slight improvement in supporting their ideas with reasoning, their decision-making skills and use of descriptive language remained weak. Inference-making skills were still below the desired level. Sample student responses:

S2: "I think the cover and the content match well." (04:45 mm:ss)

S4: "It is harmonious." (Written on activity sheet)

S5: "The title and the cover image match the content. The character is a little black fish." (Written on activity sheet)

When the third action plan was evaluated within the context of critical thinking, it was observed that students were able to justify their opinions and make independent decisions based on their own ideas. Rather than repeating ideas heard from others, they were able to evaluate content critically and express their own original thoughts. This improvement is believed to be a result of consistent teacher guidance throughout the process, including reminders to avoid repetition and encouragement to present individual perspectives. In this plan, students appeared to structure and present their thoughts in alignment with key dimensions of critical thinking. It was generally observed that students were unable to use oral and written language effectively. This issue is believed to be linked to the students' lack of regular reading habits. Moreover, for most students, Turkish is not their native language. Since the language spoken at home differs from the language used at school and in broader society, students struggle to use the language effectively. It was observed that two students were able to incorporate explanatory definitions while expressing their thoughts and demonstrated awareness of inconsistencies, indicating an improvement in their self-awareness compared to earlier action plans. It was generally observed that students were unable to use oral and written language effectively. This issue is believed to be linked to the students' lack of regular reading habits. Moreover, for most students, Turkish is not their native language. Since the language spoken at home differs from the language used at school and in broader society, students struggle to use the language effectively. It was observed that

two students were able to incorporate explanatory definitions while expressing their thoughts and demonstrated awareness of inconsistencies, indicating an improvement in their self-awareness compared to earlier action plans. The observed decrease in the frequency of explanatory definitions was not due to a regression in this skill but rather to the limited number of activities targeting this component in the third action plan. Students continued to show weakness in questioning information sources. This is thought to be due to their limited access to digital tools, the fact that most live in rural areas, and a general lack of internet connectivity. However, they appeared to adopt a questioning attitude rather than uncritically accepting information. Representative student responses include Sample student responses:

> *S6: "Everyone comes to the shop after seeing the adverts. These are also shared on social media to make the product more attractive. It influences people because everyone likes it and buys it. Some ads really offer us things we actually need." (Activity Sheet)*

> *S7: "Sometimes there are negative aspects of ads, and he tells people about them. I think he explains them clearly and critically. This shows he is honest." (Activity Sheet)*

> *S8: "People can restrain themselves." (Activity Sheet)*

When the fourth action plan was evaluated in terms of critical thinking, a significant improvement was observed in students' abilities to interpret, evaluate, and make inferences, compared to previous action plans. This improvement is attributed to the frequent inclusion of activities targeting these dimensions in earlier stages and the students' ability to develop their ideas through peer interaction. The post-test scores in critical thinking also support this positive development. It can be said that students reached an adequate level of self-awareness. Although students initially had difficulty comprehending the texts during individual reading, they reported better understanding when engaging in classroom activities. This suggests that text-based group work contributed to their comprehension. One student expressed this as follows:

> *S9: "Teacher, I was a bit bored while reading the book. I didn't understand much, especially at the beginning. But when we did the activities here with my friends, it all made sense. Now I understand it better." (Interview, 20.12.2022)*

Student responses suggest that they have also improved in asking effective questions, although this skill has not yet reached a fully satisfactory level. They demonstrated sufficient performance in the dimensions of questioning, interpretation, evaluation, expressing original ideas, and drawing conclusions from available data. The students' interest in activities such as creating questions about the books, evaluating character traits, writing alternative endings, and participating in group work likely contributed to this development. The researcher noted the following in the field diary:

> *Researcher: "After the lesson, students came to me and said they found the activities very enjoyable. Even if they didn't fully understand the books while reading, they said they comprehended them better through the group activities. They expressed a wish to do similar work for every book." (Researcher Diary, 19.12.2022)*

Overall, student responses indicated that they were able to evaluate the current situation, articulate their interpretations, and draw logical inferences from the data. In this context, it can be said that their performance in these dimensions was satisfactory. Sample student response:

> *S10: "I think the colours were nice. The illustrations were funny and beautiful, and they matched the content. The pictures gave clues about the story. There was nothing wrong with the page layout." (06:05 mm:ss)*

When the fifth action plan was evaluated in the context of critical thinking, the responses of students whose critical thinking skill levels were low prior to implementation were examined, and it was observed that they were at a sufficient level in the analysis and evaluation codes. The fifth action plan included activities focused on the students' abilities to support their conclusions with reasons, make independent decisions, and recognise inconsistent judgements, which were areas where they struggled to show improvement. In this context, a significant improvement was observed in the students' abilities to analyse, evaluate, draw conclusions, and make decisions based on logical criteria compared to their pre-implementation and first action plan levels. It was also determined that students' abilities to question, interpret, and ask effective questions were at a sufficient level. When the answers of students whose critical thinking skill levels were at an intermediate level before the application were examined, it was seen that they were able to analyse and evaluate while expressing their thoughts, were at a sufficient level in terms of making inferences and were able to determine reasonable criteria when making decisions. The relevant student answers are given below:

> *S11:" Sir, when you mentioned artificial intelligence, I became very curious. My interest in the content increased. Because it was giving hints about the content." (3.27 mm:ss)*

Before the application, the answers of students with high critical thinking skill levels according to their class were examined. It was observed that the students were able to analyse and evaluate while expressing their thoughts, were at a sufficient level in terms of making inferences, and were able to determine reasonable criteria when making decisions. The relevant student answers are given below:

> *S12: Whenever I buy a book, I look at the inside and outside of it before purchasing it. This is because I want to choose books that I can read. (Activity Sheet).*

> *S13: It arouses my curiosity. This is because we read the summary on the back before buying the book. After reading the description, my curiosity about this book was aroused. (Activity Sheet).*

When examining the students' post-application critical thinking final test scores, a significant increase was observed. It is thought that designing activities targeting each component of critical thinking and implementing these activities interactively in the classroom through different group work was effective in this case. In this sense, it can be said that the students showed improvement in their critical thinking skills.

Findings Regarding the Contribution of Applied Teaching Activities to the Development of Problem-Solving Skills in Students from Low Socioeconomic Backgrounds

A total of eight problem-solving activities aimed at developing problem-solving skills were prepared and implemented for students in the action plans applied, focusing on five children's books read to the students. These activities focused on developing students' problem recognition and solution generation skills by focusing on the problems encountered by the book's characters and their ways of solving them. The characters' ways of recognising problems, solution steps were examined, and solutions were evaluated. In this regard, efforts were made to develop students' abilities to recognise problems, develop solutions, solve problems by setting reasonable criteria, and evaluate the results. Both audio and video recordings were made to ensure that there was no loss of data regarding the students' answers. The data obtained from the student activity responses were presented using the video and audio recordings.

Table 8. Findings Regarding the Development of Problem-Solving Skills

Action Plan	Code	f
1. Action	Selecting the problem	13
	Identifying the problem	6
	Evaluating the pros and cons	5
	Solving the problem	15
2. Action	Selecting and defining the problem	30
	Setting realistic and achievable goals for the problem	17
	Generating alternative solutions	22
	Developing an action plan	14
	Choosing options for solving the problem	9
	Evaluating the pros and cons of the problem	7
3. Action	Selecting and defining the problem	39
	Setting realistic and achievable goals for the problem	39
	Generating alternative solutions	15
	Choosing options for solving the problem	15
	Developing an action plan	33
	Evaluating the results	1
4. Action	Selecting the problem	20
	Defining the problem	20
	Solving the problem	8
5. Action	Setting realistic and achievable goals for the problem	31
	Generating alternative solutions	25
	Selecting options for solving the problem	23
	Developing an action plan	26
	Evaluating the results	9

Looking at Table 8, a total of 8 activities were carried out to develop students' problem-solving skills: 1 in the first and fourth action plans and 2 in the second, third and fifth action plans. Repeated codes and themes have been combined and presented. When the first action plan was evaluated in the context of problem solving, it was observed that students could generally select the problem but could not define it, and even if they solved it, the solutions were not appropriate. It was determined that they could not reach an appropriate solution because they could not evaluate the positive and negative aspects of the problem. However, five students with high-level problem-solving skills were able to select and define the problem, evaluate its positive and negative aspects, and produce appropriate solutions. The relevant student responses are provided below:

> *S14: My friend forgot to do his homework. He panicked a little. I immediately asked him to take out his book and we determined which homework he hadn't done. However, there was no time and we couldn't do it. (On the activity sheet)*

> *S6: The other day my friend got into a fight. I immediately ran to help him. We did what was necessary. (On the activity sheet)*

> *S15: When we arrived at school in the morning, I saw that my friend felt sick. I think he hadn't had breakfast. If he didn't eat something, he could have felt worse. I went and got something for both of us from the canteen. We ate and chatted. He said he felt better. I felt good too. (On the activity sheet)*

When the second action plan was evaluated in the context of problem solving, it was observed that students showed a certain degree of improvement in selecting and identifying problems. It is thought that the designed activities were effective in this case, primarily because they aimed to enable

students to identify an existing problem and gain awareness of the issues. However, looking at the students' answers, it was seen that they were far from the problem-solving stages and did not offer meaningful solutions. This situation is thought to be related to the fact that students are not involved in any problem-solving process in the family environment and are left alone in the context of problem solving.

When examining the responses of students with problem-solving skills at an intermediate level for their class, it was observed that they were able to identify the problem and generate alternative solutions. It was also observed that they were able to develop action plans for these alternative solutions. Compared to the previous action cycle, it was noted that they showed improvement in taking action rather than merely verbally expressing the ways to solve the problem. For example, they have participated in activities where they needed to be aware of their friends who needed help and not only express this but also initiate campaigns for them. It can be said that project-based activities are effective in this case, as these types of group work were designed. It was also observed that students developed awareness in setting realistic, achievable, and tangible goals for the problem. The relevant student responses are provided below:

> *S7: I would beg my mother, saying, 'Please, Mum, whatever you do.' I would say I wouldn't let myself be crushed like a black fish. I would say that if I found something new, our name would go down in fish history. I would say that if we all went together, united, we wouldn't be afraid. I would speak sweetly to my mother, trying to persuade her. (Activity Sheet)*

When the third action plan was evaluated in the context of problem-solving skills, it was observed that students solved the problem by mastering the problem-solving stages. It can be said that activities and classroom applications that worked through the problem-solving process step by step were effective in this case. Students who were insufficient in generating alternative solutions were also found not to evaluate whether the solution worked or not. Some students' failure to read the book simultaneously with their peers, their reluctance to participate in activities, and their inability to listen to and evaluate each other's thoughts contributed to this situation. Furthermore, family interviews revealed that these students were also excluded from the process in family problems. The relevant student responses are provided below:

> *S2: If it were me, I would apologise and try to make amends. Then I would buy a gift, go to them and celebrate again. (Activity Sheet)*

When examining the responses of students with an intermediate level of problem-solving skills, it was observed that they progressed through the stages of problem-solving and identified achievable goals for the solution by selecting and defining the problem. It was also noteworthy that they generated alternative solutions and made choices. The frequent implementation of activities targeting these components and the awareness gained in this regard were effective in this development. The relevant student responses are provided below:

> *S7: I would say, 'I have work to do, I'll be right back,' and walk away. Or I would be straightforward and tell them. Or I would buy something from the grocery store. Or I would give them a cherished item from my home as a gift. (Activity Sheet)*

When examining the responses of students with higher problem-solving skill levels, it was observed that they followed a path consistent with the stages of problem solving. After selecting and defining the problem, the students were able to set realistic goals and generate alternative solutions. The relevant student responses are provided below:

> *S12: I would tell him the truth and make him a gift myself that day. I would take great care to ensure it was a gift he would like. (42.57 mm:ss)*

When the fourth action plan was examined in the context of problem-solving skills, it was observed that the students were able to select and define the problem. In terms of proposing solutions to the problem, the responses of students coded as Ö11 and Ö10 were noteworthy. The relevant student responses are provided below:

S11: Cutting down trees to build houses. Machines producing everything. Products past their use-by date still being on the shelves in shops. Animals' natural habitats not being protected. Animals being harmed. We need to educate people to put an end to all this. (15.54 mm:ss)

When examining the responses of students with high problem-solving skill levels prior to the application, it was observed that they had no difficulty selecting and defining the problem, but some students were inadequate in generating solutions. It is thought that the students' perception of themselves as adequate in problem-solving and their failure to participate in the application process at the desired level were effective in this situation. The relevant student responses are given below:

S10: The people working in the canteen give priority to their acquaintances. This is unfair. The woman should be warned about this. People are swearing. Rubbish is being thrown on the floor. (14.53 mm/ss)

When the fifth action plan was examined in the context of problem-solving skills, it was observed that in the previous plans, students generally did not evaluate the usefulness of the solution after resolving the problem. The perception that problem-solving ends once a solution is found appeared to influence this outcome. However, in this action plan, nine students were found to have paid attention to this aspect and evaluated the results of their solutions.

An analysis of the responses from students whose problem-solving skill levels were low prior to implementation revealed that they were able to set realistic and achievable goals. However, student S4 was found to have difficulties in this regard; this student neither established realistic and attainable goals nor proposed plausible solutions. The student response is as follows:

Ö4: "I will do my best. I would give my life for him. If he dies, I'll kill myself too." (21:57 mm:ss)

In the coding category of generating alternative solutions and offering options, students were found to be at a sufficient level. Similarly, they demonstrated adequate competence in developing action plans for solving the problem. In this regard, the responses of students Ö14, Ö2, and Ö1 stood out. Sample responses are provided below:

Ö14: "I would do everything I can to help him get better. For example, I would buy medicine, take him to the hospital, and help him feel better." (19:09 mm:ss)

For students whose problem-solving skill levels were at a moderate level before implementation, it was observed that they could set realistic and attainable goals, generate alternative solutions, and make choices among those solutions. In the related activities, students were asked to propose different solutions from those used by the book characters, select the most appropriate option, and evaluate the outcome. These activities are thought to have contributed to the development of the mentioned skills. However, with the exception of students S15 and S13, the others were found to be insufficient in evaluating the outcomes of the problems. The responses of students S15 and S13 were notable in this regard:

S13: "In that situation, I would call all the pharmacies. After school, I'd give him healing fruits and vegetables. I'd make bone broth soup. I'd save up money to buy medicine. These usually work. These are the things that help me recover quickly when I'm sick." (21:45 mm:ss)

Among students who had high levels of problem-solving skills before the intervention, it was found that they were able to set attainable goals, propose solution paths, and develop actionable plans—sometimes even using artificial intelligence as a tool. Regarding the evaluation of the outcomes, students S10, S13, and S17 gave responses that were considered sufficient. Sample response:

S10: "The problem is that students run to the cafeteria. So, a camera will be installed at the cafeteria door. It will take pictures of students who run, and the system will detect them and delay their lunch by 10 minutes. This way, there won't be any unfairness and everyone will be happy." (44:02 mm:ss)

It is known that students previously struggled with the evaluation of results component in problem-solving. Through the implemented activities, an effort was made to teach students that solving the problem is not the final step; instead, the solution must also be evaluated for its effectiveness and appropriateness. In this regard, students appeared to gain awareness over time and showed improvement through continuous engagement in the activities. Overall, it can be concluded that students demonstrated noticeable progress in their problem-solving skills. The increase in their post-test scores supports this finding. However, students Ö4, Ö5, and Ö2 showed no significant improvement.

Findings on the Contribution of the Implemented Instructional Activities to the Development of Creativity Skills in Socioeconomically Disadvantaged Students

Throughout the action plans, a total of 19 creativity-oriented activities were designed and implemented based on five children's books assigned to the students. To prevent data loss regarding students' responses, both audio recordings and video footage were collected. The findings presented in this section are based on the data obtained from these audio-visual materials and the students' written responses to the activities.

Table 9. Findings on the Development of Creativity Skills

Action Plan	Code	f
1. Action	Fluency	43
	Originality	11
	Flexibility	7
	Abstractness of titles	8
	Enrichment	20
	Resistance to early closure	1
	Creative forces	6
2. Action	Fluency	31
	Flexibility	7
3. Action	Fluency	93
	Originality	10
	Flexibility	14
	Abstractness of titles	15
	Enrichment	6
	Creative Forces	12
4. Action	Fluency	100
	Originality	9
	Flexibility	12
	Abstractness of titles	6
	Enrichment	3
	Creative forces	2
5. Action	Fluency	158
	Originality	8
	Flexibility	10
	Abstractness of titles	19
	Enrichment	8
	Resistance to Early Closure	3
	Creative Forces	4

As shown in Table 9, a total of 19 activities aimed at developing students' creativity skills were implemented—three in the first and third action plans, two in the second, five in the fourth, and six in the fifth. Repeating codes and themes were merged and presented collectively in the table. Since creativity was found to be the most challenging skill to develop throughout the study, the action plans were revised, and the number of creativity-focused activities was increased particularly in the final weeks. When the first action plan was evaluated in terms of creativity, it was observed that during the activity in which students were asked to introduce their family members, they failed to produce descriptive and fluent expressions. The descriptions were generally short and inconsistent. Students did not introduce their family members using creative expressions; they merely mentioned physical attributes without referring to any personality traits. This outcome is believed to be related to students' limited vocabulary, low reading habits, and a tendency to think using fixed patterns. Sample student responses:

> *S14: "My grandfather is quite angry and authoritative. In contrast, my grandmother has smiling ears. Even if people speak badly, she always hears the good. She is cheerful and optimistic and constantly tells us stories. My aunt is as short as a vegetable seedling but has a nose as long as a poplar tree. She pokes her nose into everything. My mother and father are ordinary people. My father goes to work every day, and my mother does housework and takes care of us. They are both short but very compassionate. My mother has jet-black eyes just like mine. I won't even start on my siblings. They are like the three mischievous dwarfs." (41:30 mm:ss)*

> *S17: "My grandfather and grandmother are two cranky old people who are always bickering. Both are chubby, incompatible, and stubborn. My grandfather is tall with tiny ears. My grandmother is short with a very long tongue—probably long enough to reach my grandfather's ears. My parents don't get a chance to argue because of them. I love my sister Zeliş. She takes care of me a lot. She's like a fairy godmother—she has huge wings and flies from place to place." (47:55 mm:ss)*

These responses show that students were able to generate ideas within the *fluency* dimension of creative thinking. Those with a medium level of creative thinking ability used more descriptive expressions, attempting to describe their family members both physically and in terms of personality. Phrases like "a tongue long enough to reach grandpa's ears" and "a nose as long as a poplar tree" demonstrate how students stretched descriptive language to convey different meanings. However, the responses lacked originality in terms of unique expression. When their visual activities were analyzed, students were found to be insufficient in abstract thinking, resistance to premature closure, and use of creative forces; however, they were relatively successful in enriching their visuals. This outcome is thought to be associated with students living in rural areas, having limited access to cultural and artistic experiences that foster creativity, and lacking access to books that could help them explore the world. Their pre-test scores on the Torrance Tests of Creative Thinking also support these findings.

In the context of the second action plan, which included a group work activity, students were able to generate ideas in terms of fluency, but no group produced an original idea. Below are excerpts from a play script written by students about helping an elderly woman:

> *S9: "Let's quickly go to her. Sister, if you allow us, we'd like to help you."*
>
> *S1: "I wish you would help. That would be really great."*
>
> *S9: "Can you tell us what we need to do?"(She explains everything to us.)*
>
> *S12: "Everything else is done. Only this task remains. We'll finish it in two hours."*
>
> *S1: "Thank you. If it weren't for you, it would have taken me two days. By then, I would've boiled from the heat." (From student activity sheets)*

When evaluated in terms of creativity, the third action plan revealed that students were able to generate ideas fluently (f = 93). Moreover, a subset of students (f = 10) demonstrated some improvement in producing original outputs. Compared to previous action plans, they also showed better performance in *flexibility*. The third action plan included activities targeting visual creative thinking skills. Students were asked to invent a completely new and unheard-of food or beverage based on the book they had read, write an advertisement for it, and design a poster. It was found that students used more descriptive language when naming their products and paid greater attention to enriching their designs with drawings and objects. None of the students left their designs incomplete or open-ended; all finalized their creations. When 12 students' designs were analyzed in terms of creative forces, they were found to differ in aspects such as emotional expression, movement, inner visualization, richness of imagination, and vividness of imagination.

Among students with lower levels of creative thinking, it was observed that although they were able to generate ideas fluently, they struggled with flexible thinking and transferring function or meaning. Their responses remained closely tied to the content of the book, and they listed their thoughts without significant modification. As a result, the products they created were similar to each other and lacked originality. Related student responses are presented below (Figure 1): S12:

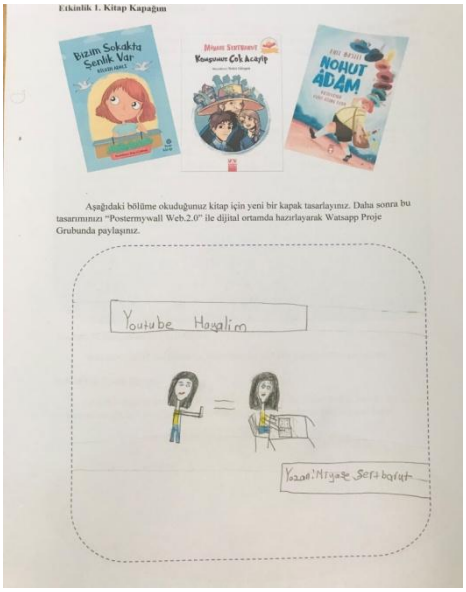

Figure 1. Student Activity Sheet

When the fourth action plan is examined in the context of creativity, it is observed that all students were able to generate multiple ideas fluently and without restriction. However, it can be said that these ideas did not demonstrate flexibility or the ability to transfer meaning and function. It was found that the students were not yet competent enough to generate original ideas. This action plan also included figural activities aimed at developing students' creativity. When students' figural designs were examined, it was observed that, compared to previous action plans, they performed lower in terms of the abstractness of titles, failed to enrich their visuals, and showed a significant decline in terms of creative strengths. Although students whose creative thinking skill levels were low before implementation were sufficient in terms of fluency, it was determined that they were unable to produce flexible and original thoughts. A relevant student response is given below:

> *S1: Dear friends, I will tell you about the importance of April 23. April 23 is a day for children to have fun. We can buy them toys and make them happy. (38:48 mm:ss)*

When the fifth action plan was examined in terms of creative thinking, it was observed that students were able to fluently generate multiple ideas. However, they had not yet reached the expected level of originality, and compared to previous plans, a decline was noted in originality and flexibility.

In this plan, the number of creativity-oriented activities was increased by the researcher, and especially in figural activities, the sub-dimensions of creativity were targeted for improvement. Although there was an increase in the frequency values of the sub-dimensions such as abstractness of titles, enrichment, resistance to premature closure, and creative strengths compared to previous plans, this was attributed more to the increased number of activities and the focus on figural activities than to an actual improvement in creativity.

The most challenging activities for students were those requiring creative thinking skills. As a result, students reported feeling bored during these activities. They preferred giving short, thoughtless answers and refrained from volunteering. When the researcher-teacher tried to involve students in the process by asking for their opinions, students gave brief responses. Based on interviews with families, it was concluded that because students had been expected to think within certain rules and norms from an early age, it became difficult for them to break out of these patterns and think flexibly and creatively. This situation is thought to have influenced their inability to reach the desired level of creative thinking skills. When the responses of students whose creative thinking skill levels were moderate before the implementation are examined, it can be said that they showed progress and were sufficient in terms of fluency. However, they did not reach the desired level in terms of flexibility and originality. Relevant student responses are given below:

> *S18: Dear children, I have good news for you for April 23. Free toys will be distributed to you. You can go shopping with the cards we give you. Additionally, financial support will be provided to your families. Thank you for listening. (37:13 mm:ss)*

When the responses of students whose pre-implementation creative thinking skill levels were high relative to the class are examined, it is seen that they were adequate in terms of fluency and flexibility but lacked in originality. Relevant student responses are presented below:

> *S8: Dear friends, first I will explain to you the difficulties under which April 23 was gifted to us. Then I will explain what we will do for this holiday. Our ancestor gifted this holiday to children. The fact that he gifted it to all children shows that all children are equal. In some places, children are forced to beg. We must prevent this. Some children cannot be outside like us. They are now in hospitals trying to overcome some difficulties. They cannot enjoy this holiday. You can make more donations for these children. Thank you for listening. (31:50 mm:ss)*

When the students' responses were examined, it was observed that although they showed progress in terms of creative thinking, this development was not at the desired level. It was discovered through the activities in the fourth action plan that students had difficulties with abstract thinking, particularly with idioms and proverbs. They created texts using the idioms and proverbs in their literal meanings. It is thought that students who produce simple ideas based on close associations need to be exposed to more texts and books in the context of creative thinking. Additionally, introducing students to various artistic activities that foster creative thinking is considered to be effective. Ayaydın (2011) states that art has an influence on children's creativity. Social activities are believed to be important in helping students, who are accustomed to thinking within fixed patterns and rules due to their family structures, to gain a more diverse perspective and flexible thinking. Developing a reading habit and culture, and getting to know different characters and lives, are believed to benefit students in terms of thinking differently.

Since students' creative thinking skills did not develop to the desired level during the process, the number of activities aimed at creative thinking was increased in the fifth action plan. In this plan, efforts were made to develop students' creative thinking skills both verbally and figural. It was determined that students showed a significant improvement in terms of fluency; however, a decline in the frequency values of originality and flexibility was observed compared to previous action plans. This indicates that students were not able to reach a standard level in originality and flexible thinking and did not show permanent development.

S19: I would do something fun and nice. I would try to assign adventurous and design-based homework or books. From another perspective, I would assign colorful and sweet tasks just like the ones you gave us. This process helps us enjoy reading, and it would help them too. (13:10 mm:ss)

The student's response indicates a positive attitude toward the implementation process and emphasizes that it was a process that fostered a love for reading. The fact that students constantly encounter different activities related to creative thinking necessitates the development of new ideas. However, it has been observed that students struggle to produce new and different ideas each time.

When the responses of students whose creative thinking skill levels were at a moderate level before the implementation are examined, it was found that they were sufficient in terms of fluency, showed progress in flexibility although not at a sufficient level, and remained inadequate in originality. Relevant student responses are provided below:

S10: If it were me, I would ask fun questions about the book, but ones that cannot be answered without reading the book. Then if kids who don't like to read wanted to answer, they would have to read the book. (10:21 mm:ss)

It was generally observed that students had difficulty with activities that required creative thinking. Although there was a slight increase in the final test scores related to creative thinking skills, it was found that students were still not at a sufficient level in terms of producing original ideas and products. Factors such as a lack of life experience, limited social activities, fear of being mocked by peers when sharing ideas, and being raised in families with rigid norms and stereotypes from an early age are believed to slow down students' developmental pace. When the responses of students whose creative thinking skill levels were low before implementation are analyzed, it is seen that they were sufficient in terms of fluency and showed progress, although not sufficient, in flexibility and originality. In figural activities, however, it was observed that students did not show consistent development in codes such as abstractness of titles, resistance to premature closure (delaying immediate decision-making in the face of uncertainty), and enrichment (making the learning process more diverse); frequency values varied depending on the number of activities. In general, although there was an improvement in students' creative thinking skill levels, this development was not at a satisfactory level.

Discussion

In order to determine the critical thinking skill levels of the students in the study group, interviews were conducted with other subject teachers who taught these students and with their families. In addition, the Cornell Critical Thinking Test was administered as a pre-test. These initial evaluations revealed that the students' critical thinking skills were at a low level. In the literature, similar findings are reported. For example, Candaş (2024) identified low pre-implementation levels of critical thinking in students in her study on the effectiveness of lessons enriched with critical thinking methods. Similarly, Zorlu (2023) found that the critical thinking skills of 61 fifth-grade students were inadequate and investigated the effects of argumentation-based instruction on students' critical thinking and informal reasoning skills. It can be inferred that such studies aim to enhance students' critical and informal reasoning skills. Likewise, Mutlu (2023), in his study with fifth-grade students, observed insufficient critical thinking skills and aimed to improve these through a differentiated thinking instructional program. Ergin (2023), in a study with five-year-old children, investigated the effects of interactive book reading on their critical thinking skills and concluded that this method was effective in promoting critical thinking. Savaş (2023) also aimed to develop students' critical thinking skills through an approach based on logical fallacies. It was found that students with low levels of critical thinking skills before the implementation showed a certain level of improvement afterward.

Başkalyoncu (2023) similarly determined that the critical thinking levels of students were low before various in-class practices, which were found to have a significant positive effect post-implementation. Overall, studies in the literature show that various models and instructional materials focusing on the development of students' critical thinking skills lead to considerable improvement (Arduç, 2023; Bilir, 2023; Bolattaş-Gürbüz, 2023; Ercan, 2023).

Numerous initiatives have been made to define 21st-century skills through various frameworks. Among these, the most widely accepted is the P21 Framework. This framework emphasizes that next-generation learners should develop inquisitive perspectives, analytical thinking skills, self-regulation abilities, creativity, and a problem-solving approach to real-life issues. Consequently, education systems that focus on enhancing these skills are gaining increasing importance. In line with this, the literature shows a growing number of studies aimed at improving students' critical thinking abilities. These studies emphasize the effectiveness of project-based approaches, out-of-school learning, and experience-based methods over traditional ones (Asıl, 2023; Candaş, 2024; Demircioğlu, 2024; Kuru, 2023). The instructional activities developed during the research focused on students' experiences to ensure cognitive engagement and included technology-based learning opportunities. The activities incorporated group work such as drama and cooperative learning, along with the use of Web 2.0 tools to create technology-supported learning environments. Literature reviews confirm that such practices have a positive impact on student learning (Bedir, 2023; Bilir, 2023; Çetin, 2023; Gedik, 2023; Özbilen, 2023).

To enhance critical thinking skills, students must first understand the concept itself and gain awareness. They also need to know how to access information, analyze and evaluate it, and make inferences. However, factors such as socioeconomic status, family structure, and living environment hinder students' access to information. Thus, the instructional activities in this study were designed using methods such as drama, Web 2.0 tools, and cooperative learning to support students' access to information and experiential learning. Additionally, books promoting critical thinking were selected to raise students' awareness.

According to the research findings, there was a noticeable improvement in students' critical thinking skills. Similarly, Uyulan (2024) reported that activity-based critical thinking instruction leads to more effective and lasting learning. It was observed that students were particularly active in drama and group work supporting cooperative learning. Taşkın Serbest (2023) emphasized that contemporary teaching approaches foster critical thinking skills more effectively than traditional methods. Students demonstrated improvements in questioning, analyzing, inferring, decision-making, reasoning, and evaluation skills, indicating enhanced critical thinking. Researchers noted that students' acquisition of an inquisitive and descriptive perspective was an expected outcome (Kan, 2023). In conclusion, activities that support inference, decision-making, and justification contributed positively to the development of students' critical thinking.

The study found a significant improvement in all subdomains of critical thinking skills for all students except two. These findings align with those of Kaya (2023) and Öztürk (2023). Despite the students' disadvantaged socioeconomic backgrounds and some academic deficiencies, the results indicate that with sufficient effort and time, development is possible.

The data obtained from interviews with teachers and families, as well as from the Cornell Critical Thinking Test, showed that seventh-grade students had low problem-solving skills. Similarly, Sarıkoç-Bilir (2023) found low problem-solving skills among ninth-grade students. Kaptan (2023) observed that reading comprehension instruction had a significant positive impact on students' problem-solving skills. Türk (2023) also noted that orienteering activities significantly improved students' problem-solving abilities. Çoban (2023) concluded that activity-based instruction positively influenced students' problem-solving skills. Factors such as low socioeconomic status, illiterate parents, and limited access to resources like books and libraries were identified as causes for poor problem-solving abilities. Broader life experiences (Adıgüzel, 2006), access to more resources, support and interest from families (Kamışlı, 2018), and a sense of responsibility (Ergin & Dağ, 2013) are thought to positively influence problem-solving skills.

Activities aimed at helping students understand the problems of characters in books through empathy and apply these problem-solving skills in real life were conducted. Cooperative group activities, drama, and digital design tasks were used to engage students in problem-solving processes. Oğuz (2023) found that Turkish lessons incorporating creative drama improved the creative thinking and problem-solving skills of gifted students. In this study, it was found that the students had no difficulty in defining and describing problems. Kanmaz (2023) noted that this is an expected outcome. However, students needed further development in setting realistic goals and generating alternative solutions. Alın (2023) also found that interdisciplinary problem-solving activities contributed to students' ability to define realistic goals and produce alternative solutions. The current research supports these findings.

It was noteworthy that students lacked the habit of evaluating outcomes after solving problems, suggesting that reaching a solution was perceived as the final step in the problem-solving process. Although four students showed progress in the evaluation stage, most were found to be inadequate. Altun (2023) reported a weak correlation between students' ability to evaluate outcomes and their overall problem-solving success, supporting the findings of this study. Overall, the study suggests that when students are actively engaged in the process, they participate more willingly and are more open to learning. Therefore, allocating more time and incorporating such activities more frequently is essential to further developing problem-solving skills.

The results of the instructional activities showed that students' creative thinking skills did not improve to the desired level. Although students participated willingly in activities aimed at enhancing digital competence and creativity, the expected progress was not achieved. While there was some improvement compared to their initial state, it did not meet the targeted level. Atalay (2023) also found no significant difference in verbal creativity scores before and after interventions involving creative home environments and motivation to learn creative thinking. Kalaycı (2023), in a study on inquiry-based instruction, also found no statistically significant improvement in scientific creativity despite a positive trend in post-test scores. The fact that none of the students had university-educated parents and that their families were economically disadvantaged may have limited their participation in artistic and creative activities. This may explain the limited development in creative thinking. Despite progress in digital competence and creativity-focused activities, the improvement in creative thinking remained limited. Avcu (2014) showed that students produced more creative products in technology-oriented activities, supporting the present study.

When examining subdomains of creative thinking, the fluency subdomain showed more progress than others. Sağlam (2023) found that creative problem-solving modules enriched with the history of science improved the critical, creative, and problem-solving skills of 5th and 7th-grade students, although not to a statistically significant extent. While students succeeded in the fluency domain, they struggled with originality. This trend aligns with findings from Budak Kaymaz (2022), who studied the effect of digital game prototyping education on the creative thinking of 10-year-old children and found a slight but statistically insignificant increase in post-test scores. All these studies support the findings of the current research.

Conclusion

Content analysis of students' responses to the activities revealed that their initial negative perceptions of the concept of critical thinking had changed, and they had developed an understanding of its meaning. Following the activities, it was observed that, except for two students, all showed improvement in their inquiry skills. Through the books they read and the activities they participated in, students enhanced their ability to make inferences from data and to make predictions aimed at reaching conclusions. However, desired progress was not achieved in the sub-dimensions of analysis and evaluation. Only four students demonstrated sufficient improvement in these areas. Nonetheless, students made progress in setting rational criteria for decision-making and supporting their thoughts with sound reasoning. Interview data indicated that students became more aware of critical thinking and were able to transfer this skill into their daily lives. During the final interviews, students expressed enjoyment of the activities and a desire to participate in more.

Findings from student activities also revealed improvements in their problem-solving skills. It was observed that the indifference they exhibited before the implementation had disappeared, and they had gained knowledge about the problem-solving process. After reading selected books and engaging in the designed activities, all students were able to select and define problems without difficulty. It was found that they improved in setting realistic and attainable goals for solving problems and in generating alternative solutions. However, eight students still fell short in developing actionable plans. Although some progress was observed in evaluating outcomes, this improvement was not at the desired level. In the final interviews, students indicated that they had gained knowledge about addressing problems and had made progress in their problem-solving abilities.

According to the findings obtained from the student activities, a noteworthy number of students showed sufficient improvement in the fluency sub-dimension of creative thinking. While the number of students demonstrating improvement in flexibility and originality increased after the implementation, the level of improvement was still below expectations. Some students also exhibited slight progress in emotional expression and richness of imagination. During the final interviews, students emphasized that the activities and books that fostered creative thinking enriched their imagination and helped them advance in generating ideas. They stated that the difficulty they previously experienced in producing ideas had been overcome and that they now possessed a rich pool of thoughts. However, it was also observed that they had not yet developed original ideas and had not reached the desired level of improvement in the sub-dimensions of creative thinking.

In conclusion, the findings of this study show that the activities designed based on children's books led to a certain degree of improvement in students' critical thinking and problem-solving skills. Although there was some development in creativity skills, the improvement did not reach the desired level.

Recommendations

Based on the findings obtained from this research, the following recommendations are presented for implementation and for future studies:

Recommendations for Practitioners

The results of the study indicate that the implementation process enhanced students' critical thinking skills. Considering that today's students are digital natives who frequently use social media and are exposed to various stimuli, the importance of critical thinking skills becomes evident. In this context, it is believed that critical thinking education should hold a significant place in school curricula. The study also revealed the need for more supportive activities to foster the development of students' creativity. Furthermore, it was determined that problem-solving skills can be improved in a relatively short period of time. Consequently, it is recommended that various measures be taken to promote students' reading habits and support their academic success.

Recommendations for Future Research

This study was conducted in a school located in a low socioeconomic area. Future research may explore the effects of similar instructional content on students in schools from medium and high socioeconomic backgrounds and examine their developmental outcomes. The current study was carried out with seventh-grade students. Future studies may evaluate the effects of lesson plans designed to enhance critical thinking, problem-solving, and creativity in students from the 5th, 6th, and 8th grades. Additionally, the impact of the implementation on either all-female or all-male student groups can be investigated separately. Due to the limited duration of the intervention, the activities aimed at fostering creativity were restricted. Therefore, future studies could incorporate a greater number of creative thinking activities and children's books that support creativity.

Due to challenges in obtaining legal permissions, extracurricular social and artistic activities were excluded from the lesson plans. However, future studies may consider including such out-of-school educational activities aimed at developing students' critical thinking, problem-solving, and especially creativity skills. The activities in this study were primarily designed around Turkish language, visual arts, and information technology content. In future research, more original activities can be developed by integrating diverse subject areas. Furthermore, due to the inadequate technological infrastructure of the school, information technologies could not be fully utilized. Thus, future implementations may benefit from the use of more advanced digital tools and computer programs as instructional resources.

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