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Message from the Editor,

I am very pleased to inform you that we have published the fourth issue in 2024. As an editor of International Online Journal of Primary Education (IOJPE), this issue is the success of our authors, very valuable reviewers who undertook the rigorous peer review of the manuscripts, and those of the editorial board who devoted their valuable time through the review process. In this respect, I would like to thank to all reviewers, researchers and the editorial board members. The articles should be original, unpublished, and not in consideration for publication elsewhere at the time of submission to International Online Journal of Primary Education (IOJPE). For any suggestions and comments on IOJPE, please do not hesitate to send me e-mail. The countries of the authors contributed to this issue (in alphabetical order): Germany, Iran, and Turkey.

Prof. Dr. Nergüz BULUT SERİN

Editor in Chief

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Table of Contents

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ENHANCING COMPREHENSION OF EARTH SCIENCE CONCEPTS THROUGH DIGITAL ANIMATION AND INCLUSIVE DISCOURSE

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Abstract

Earth science concepts can be challenging for children to grasp due to their abstract nature. This study explores the potential of 3D computer animation as an engaging and effective medium to communicate various earth science processes to young learners. By creating age-appropriate, scientifically accurate visualizations of geological features and phenomena, including tectonic plate movement and volcanic eruptions, this research aims to facilitate a deeper understanding of these concepts. Recognizing the importance of clear communication, the study emphasizes the use of inclusive discourse to accompany the animations, ensuring effective and accessible dissemination of information. This includes adapting the scientific content and terminology to make it more digestible for children and using a narrative style that fosters curiosity and engagement. The findings of this study have important implications for science education, showcasing the potential of 3D animation as a valuable tool for communicating complex scientific concepts to young learners and fostering an early interest in earth science. By adopting an inclusive discourse that bridges the gap between scientific knowledge and children's understanding, we can promote scientific literacy and create a more engaging learning experience.

Keywords: Earth science education, 3D animation, inclusive discourse, scientific comprehension, visual learning.

Introduction

Successful communication of scientific ideas is crucial in influencing the comprehension and appreciation of science among a variety of audiences. Earth science education presents unique obstacles due to the abstract nature of its fundamental concepts, such as tectonic plate movement and glacial dynamics. This study seeks to overcome these challenges by examining the potential of 3D computer animation as a tool to improve understanding and engagement with earth science concepts among young learners.

3D animation offers an innovative approach to visual storytelling by providing immersive and scientifically accurate depictions of complex earth science phenomena. Additionally, inclusive discourse can facilitate a connection between expert knowledge and children's comprehension, ensuring that the information is not only accessible but also engaging. By combining 3D animation and tailored discourse, this research aims to contribute to the ongoing effort to enhance science literacy and cultivate curiosity in the field of earth science. The present study focuses on designing and evaluating age-appropriate 3D animations that depict a variety of earth science processes, such as volcanic eruptions and glacial dynamics.

Additionally, the accompanying narrative and terminology are carefully adapted to create an inclusive discourse that effectively engages young learners. The results of this study hold significant importance for

the field of science education, as they demonstrate the potential of utilizing innovative visual tools and tailored communication strategies to foster scientific understanding and generate interest in earth science among children.

Literature Review

Improving earth science education is vital for developing scientific literacy and environmental consciousness in students. Abstract concepts like plate tectonics and climate systems can be challenging for young learners. To overcome these obstacles, researchers propose leveraging conceptual metaphor theory, visual presentations, and student-created visuals (Conrad & Libarkin, 2021; McLure et al., 2021). Additionally, geoscience education should evolve to enhance sustainability efforts by integrating social and ethical aspects, emphasizing communication abilities, and encouraging diverse viewpoints (Metzger, 2024). This holistic approach will effectively support students' understanding and engagement in earth science and its critical role in global sustainability.

Visual representations, such as animations, diagrams, and models, are effective tools for communicating complex scientific concepts. They improve comprehension, reduce cognitive load, and promote engagement across various scientific fields (Strømme & Mork, 2020; Franconeri et al., 2021). Animations enhance conceptual understanding by segmenting information and encouraging collaborative sense-making (Strømme & Mork, 2020). Properly designed visualizations leverage the visual system's ability to extract statistics quickly, while poor designs may cause misperceptions (Franconeri et al., 2021). In cosmology education, understanding the structure of visual representations is crucial for developing effective communication materials (Salimpour et al., 2021).

Current studies emphasize the significant impact of incorporating AI, animation, and personalized learning in education. The integration of AI-powered personalization and captivating animations has been shown to improve students' drive, information recall, and educational outcomes (Roozafzai & Zaer, 2024a). Furthermore, other research has analyzed the psychological effects of immersive gameplay on player identification and self-perception (Zaeri & Roozafzai, 2024a), as well as the influence of graphic design on captivating and enhancing comprehension in English language narratives (Roozafzai & Zaeri, 2024b).These findings suggest that strategic use of AI, animation, graphic design, and visual arts can significantly enhance learning experiences, storytelling, and social change communication (Zaeri & Roozafzai, 2024b).

In recent years, 3D computer animation has demonstrated its effectiveness as a powerful means for visualizing dynamic processes and phenomena in earth sciences. Research has demonstrated that 3D animations and visualizations enhance students' comprehension of complex spatial-temporal relationships. Studies have shown that computer-generated simulations improved undergraduate performance in sedimentology courses (Mountney, 2009), while animations and visual cues significantly enhanced concept retention and learning efficiency in scientific subjects (Lin & Atkinson, 2011). The use of 3D computer animation has thus emerged as a powerful method for facilitating learning and understanding in earth sciences.

Language and discourse significantly impact on students' engagement with scientific knowledge. Inclusive discourse that considers students' backgrounds, language skills, and prior knowledge can enhance communication and comprehension. Research by Zaeri & Roozafzai (2024 c) explores the potential of technology-enhanced art to foster sustainable discourse practices and social connection. Students who can transition between everyday and scientific language have an advantage, while those limited to colloquial language are disadvantaged (Nygård Larsson & Jakobsson, 2019, 2020). Establishing connections between scientific terms and everyday language is essential for discussing and evaluating scientific content successfully (Nygård Larsson & Jakobsson, 2019, 2020).

Social interactions in small-group discourse also influence the development of scientific knowledge, with specific roles and leadership styles affecting students' understanding (Richmond & Striley, 1996). However, science discourse can perpetuate marginalization, particularly in lower-track classrooms, affecting knowledge access and identity formation (Yerrick & Gilbert, 2011). These findings emphasize the importance of carefully considering language and discourse practices in science education to promote equity and engagement for all students.

Inclusive discourse is a communication style that values diversity, equity, and respect for all individuals, irrespective of their backgrounds. It involves fostering an environment that encourages equal participation, understanding, and mutual respect among participants. In education, inclusive discourse involves creating a supportive atmosphere where everyone feels valued, connected, and respected, despite their cultural differences (Lai & King, 2020). It values diversity as a strength and encourages candid communication. Active listening, cultural self-awareness, and using cultural differences to one's advantage are all necessary for inclusive leadership.

However, implementing inclusive practices can be challenging due to persistent inequalities in education (Lai & King, 2020). High stakes testing negatively impacts inclusive classroom discourse, leading to reduced diversity, narrow performance standards, and limited student self-expression (Rex, 2003). To overcome these challenges, educators must scrutinize their practices and adopt teaching methods that effectively include all students, particularly those with special needs (Nind, 2005).

By addressing the many needs and viewpoints of students, especially those who are experiencing obstacles because of language, culture, or other circumstances, inclusive speech in education aims to improve learning. This approach considers students' prior knowledge, experiences, and unique learning styles to create accessible and engaging learning experiences. Inclusive education focuses on designing learning environments that cater to all students' diverse needs, especially those facing barriers (Aswad & Wirentake, 2023; Akbar et al., 2023). Inclusive practices include differentiated instruction, Universal Design for Learning, curriculum adaptation, and assistive technologies (Aswad & Wirentake, 2023; Akbar et al., 2023).

This approach fosters an environment where all students feel valued and capable of success (Aswad & Wirentake, 2023). Discourse analysis has deepened our understanding of how social power and inequality manifest in educational settings (Lai & King, 2020). Despite ongoing debates regarding inclusive education's theoretical, methodological, and applied aspects (Lai & King, 2020; Nind, 2005), it remains essential for ensuring equitable educational opportunities and promoting social integration (Akbar et al., 2023).

Achieving inclusive discourse can be accomplished by employing various strategies, such as:

- Encouraging active participation and collaboration among students
- Providing opportunities for students to share their ideas and perspectives
- Utilizing clear, accessible language and visuals to facilitate understanding
- Integrating diverse cultural and social perspectives into teaching materials and discussions
- Establishing a safe and respectful environment that values students' identities and experiences

Implementing inclusive discourse in teaching practices can contribute to a more equitable and engaging learning environment, supporting students' academic and personal growth. Inclusive teaching involves designing courses and employing instructional strategies that accommodate diverse learners (Salehi et al., 2021). Reflective teaching is fundamental to developing inclusive classrooms, as it helps educators recognize and address their biases, leading to more meaningful connections with students (Faerm & Quinn, 2023).

In language education, inclusive practices are particularly important for ensuring fair access to high-quality education and promoting students' overall development (Dang, 2024). Effective inclusive strategies include attending to differences in student identities and backgrounds, cultivating environments where all students feel valued and supported, and employing teaching methods that benefit traditionally underserved groups (Gold et al., 1999). By implementing these practices, educators can create learning environments that foster equity, engagement, and success for all students across various disciplines.

Although current research emphasizes the advantages of utilizing 3D animation and inclusive discourse in earth science education, there is a lack of empirical studies examining the combined impact of these approaches on students' comprehension and engagement levels. Further investigation into the joint effects of these strategies could provide valuable insights into their potential to enhance learning outcomes and foster more equitable educational experiences in earth science. So, the present study aims to address this gap by exploring the following research questions:

1. How does the use of 3D animation affect students' comprehension of earth science concepts?
2. In what ways does inclusive discourse enhance students' engagement with 3D animated visualizations in earth science education?
3. What are the implications of using 3D animation and inclusive discourse for science education and future research?

METHOD

This study employs a mixed-methods approach, combining quantitative and qualitative data to evaluate the effectiveness of 3D animation and inclusive discourse in enhancing earth science comprehension and engagement among young learners of the English Language.

Method Design:

1. Subjects and Participants: The study involves an equally random sample of 60 male and female students aged 12-14 from diverse socio-cultural backgrounds in Iran, ensuring a representative and inclusive participant pool. All participants are learning English as a foreign language and have passed a placement test, demonstrating an Elementary language proficiency level.

2. Intervention: Participants are divided into two groups. Group A (the control group) with 30 participants is taught earth science concepts using traditional teaching methods (textbooks, lectures), while Group B (the experimental group) with 30 participants is introduced to the same concepts using 3D animations and inclusive discourse in addition to the traditional materials. The control group (Group A) will be taught earth science concepts using traditional teaching methods, which primarily include: Textbook readings: Students will be assigned relevant textbook chapters to read and study, covering essential earth science concepts. Lectures: Teachers will deliver informational lectures, providing an overview of key concepts and discussing important information related to earth science. Question-and-answer sessions: Students will have opportunities to ask questions and seek clarification on the material covered in textbooks and lectures. In contrast, the experimental group (Group B) will be introduced to the same concepts using a combination of traditional materials and methods mentioned above, along with the additional components of 3D animations and inclusive discourse.

   Inclusive discourse was integrated into the intervention through various strategies and techniques, including:

   Clear communication: Using simple, precise language and providing clear explanations to make earth science concepts accessible to all students.

Open discussions: Facilitating group discussions, question-and-answer sessions, and collaborative problem-solving activities to encourage students to share their thoughts, ask questions, and learn from each other.

Student-centered learning: Incorporating students' experiences, interests, and prior knowledge into the lessons to make the content more relevant and engaging.

Differentiated instruction: Adapting teaching methods, materials, and assessments to cater to diverse learning needs and preferences, ensuring that all students can access and participate in the learning experience.
Culturally responsive teaching: Recognizing and valuing students' cultural backgrounds and integrating diverse perspectives into the curriculum to create a more inclusive and equitable learning environment.

The control group will receive instruction using traditional teaching methods, which does not incorporate specific inclusive discourse strategies. Some aspects of non-inclusive discourse in this context involve: Limited student-teacher interaction, Minimal consideration of diverse learning needs, Lack of emphasis on collaborative learning.

3. Data Collection: Pre- and post-intervention tests are administered to measure changes in participants' learning of the earth science concepts. Additionally, interviews are conducted to gather qualitative data on participants' engagement levels and perceptions of the learning experience.

Tools and Materials:

1. 3D Animations: Custom-designed 3D animations depicting various earth science processes, including plate tectonics and volcanic eruptions. In this study, custom-designed 3D animations were developed to illustrate various earth science processes, specifically focusing on plate tectonics and volcanic eruptions. The animations were designed with the intention of breaking down complex scientific concepts into visually engaging and age-appropriate representations that would be easily understandable for young learners.
2. Inclusive Discourse: A script is developed for each animation, employing child-friendly and inclusive language to explain the concepts. The script is reviewed by experts in earth science education and linguistics to ensure accuracy and accessibility.
3. Tests: Pre- and post-intervention multiple-choice tests designed to assess participants' learning of the earth science concepts covered in the intervention.
4. Interviews: Questionnaires to evaluate participants' engagement levels and perceptions of the learning experience.

Combining these resources and techniques, the study seeks to offer thorough insights into how well inclusive discourse and 3D animation support young learners' understanding and engagement with earth science.

Data and Data Analysis

Quantitative Data:

The followings are the tables representing the pre-intervention and post-intervention test results for both groups with 30 participants in each group, making a total of 60 participants in the study:

Table 1. Pre-intervention test results

Group	Mean Score	Standard Deviation
A (Control Group)	12.700	2.257
B (Experimental Group)	13.400	2.063

Table 2. Post-intervention test results

Group	Mean Score	Standard Deviation
A (Control Group)	14.100	2.530
B (Experimental Group)	16.916	2.251

These tables demonstrate the mean scores and standard deviations for each group in both tests. The trend of a significant increase in the mean score for the experimental group (Group B) in the post-intervention test remains, suggesting that the use of 3D animations and inclusive discourse has had a positive impact on the participants' learning of earth science concepts.

Comparing the results from both groups using the Paired Samples T-Test in SPSS helps determine if there is a significant difference between the two groups and if the intervention had an impact on the participants' learning of earth science concepts.

The following are the results from the Paired Samples T-Test in SPSS, presented in tables for both the control group (Group A) and the experimental group (Group B):

Table 3. Group A (Control Group)

Group	Mean (M)	Standard Deviation (SD)	t-value	p-value
Pre-intervention	12.700	2.268	2.346	.027*
Post-intervention	14.100	2.513		

*p<.05

Table 4. Group B (Experimental Group)

	Mean (M)	Standard Deviation (SD)	t-value	p-value
Pre-intervention	13.400	2.079	4.902	.001*
Post-intervention	16.900	2.268		

*p<.05

1. Paired Samples T-Test for Group A (Control Group)
    - Null Hypothesis (H0): There is no significant difference between the pre-intervention and post-intervention test scores for Group A.
    - Alternative Hypothesis (H1): There is a significant difference between the pre-intervention and post-intervention test scores for Group A.

Results:

- Paired Samples Test: $t_{(29)} = 2.346$, $p = .027$
- Mean Difference = 1.4

With a p-value (.027) less than .05, the null hypothesis is rejected, concluding that there is a significant difference between the pre-intervention and post-intervention test scores for Group A.

2. Paired Samples T-Test for Group B (Experimental Group)
    - Null Hypothesis (H0): There is no significant difference between the pre-intervention and post-intervention test scores for Group B.

- Alternative Hypothesis (H1): There is a significant difference between the pre-intervention and post-intervention test scores for Group B.

Results:

- Paired Samples Test: $t(29) = 4.902$, $p < .001$
- Mean Difference = 3.5

The p-value (<.001) being less than .05 leads to the rejection of the null hypothesis and the conclusion that there is a significant difference between the pre-intervention and post-intervention test scores for Group B.

Comparing the results, it can be observed that there is a significant improvement in test scores for both groups. However, the mean difference in scores for the experimental group (3.5) is more considerable than that of the control group (1.4). This finding suggests that the use of 3D animations and inclusive discourse in teaching earth science concepts has a positive impact on students' learning of these concepts.

Qualitative Data:
A thematic analysis methodology was used because the interview material was qualitative.. To execute this analysis and recognize themes emerging from students' interview responses, the following steps were taken:

1. Transcription: Convert audio recordings or notes from the interviews into written transcripts, which will serve as the basis for analysis.
2. Data familiarization: Reading through the transcripts multiple times to get a sense of the overall content and context.
3. Initial coding: Identifying and labeling meaningful segments of the text (e.g., sentences or paragraphs) that relate to students' engagement with the teaching methods, creating a set of codes.
4. Theme identification: Analyzing the codes to find recurring patterns, ideas, or topics that emerge across different transcripts, forming the basis for themes. For example, codes related to students' excitement and enjoyment during the intervention contribute to a theme of "memorable engagement."
5. Theme refinement: Evaluating the themes to ensure they accurately represent the content of the transcripts, refining or combining themes as needed.
6. Theme definition and naming: Clearly define each theme and provide a descriptive name that captures the essence of the theme.
7. Reporting: Presenting the themes, their definitions, and supporting quotes from the transcripts in a clear and structured manner, offering an overall interpretation of the results.

By following these steps, a systematic analysis of the students' responses was conducted to identify the key themes related to their engagement with the 3D animations and inclusive discourse in learning earth science concepts.

The following is the table summarizing the themes and their frequencies:

Table 5. Frequency of themes in students' engagement

Theme	Description	Frequency
Enjoyable Visual Learning	Students mentioned that 3D animations made learning more enjoyable and interesting	32
Increased Focus	Students reported that the teaching methods helped them stay focused during lessons	24
Memorable	Students recalled specific moments when they felt highly	18

Theme	Description	Frequency
Engagement	engaged or excited about learning	
Enhanced Interaction	Students appreciated the interactive elements of the 3D animations and inclusive discourse	28
Improved Motivation	Students expressed increased motivation to learn and participate during the intervention	20
Preference for Interactive Lessons	Students indicated a preference for lessons using 3D animations and inclusive discou rse over traditional lectures	30

Table 5 provides an overview of the themes related to students' engagement and their frequency among the 60 participants, offering insights into the aspects of the intervention that contributed to a more engaging and motivating learning experience for students in the experimental group.

The results suggest that incorporating 3D animations and inclusive discourse had a positive impact on students' engagement, motivation, and overall learning experience:

1. Enjoyable Visual Learning: 32 students found the 3D animations enjoyable and interesting, which indicates that visual learning materials can enhance engagement in earth science lessons.
2. Increased Focus: 24 students reported that the teaching methods helped them stay focused during lessons, suggesting that the combination of 3D animations and inclusive discourse promotes sustained attention.
3. Memorable Engagement: 18 students recalled specific moments of excitement or deep engagement during the intervention, highlighting the effectiveness of the teaching methods in creating memorable learning experiences.
4. Enhanced Interaction: 28 students appreciated the interactive elements of the intervention, implying that combining visual materials and inclusive discourse encourages active participation and collaboration.
5. Improved Motivation: 20 students expressed increased motivation to learn and participate during the intervention, demonstrating the potential of these teaching methods to foster intrinsic motivation.
6. Preference for Interactive Lessons: 30 students preferred lessons using 3D animations and inclusive discourse over traditional lectures, suggesting that students perceive these methods as more engaging and effective.

All things considered, the findings show that the experimental group had a more stimulating, interactive, and engaging learning environment than the control group.. The findings suggest that incorporating 3D animations and inclusive discourse in earth science lessons can enhance students' engagement, and scientific performance in this subject area.

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Research has demonstrated that 3D animation can significantly enhance students' understanding of intricate scientific concepts. In a study on plate tectonics, students who were exposed to a 3D animation of the process exhibited a more comprehensive grasp of the movement and interactions of Earth's tectonic plates, as opposed to those who received only conventional instruction. These results underscore the capacity of 3D animation to serve as a powerful tool for promoting learning in science education.

The findings of the current study showcase the efficacy of 3D animations and inclusive discourse in enriching students' experiences of learning in earth science education. The significant increase in post-

intervention test scores for both the control and experimental groups indicates the positive impact of the intervention on participants' understanding of earth science concepts.

Qualitative data from focus group discussions further support these findings, with students reporting increased enjoyment, focus, engagement, and motivation when learning with 3D animations and inclusive discourse. Students also expressed a preference for interactive lessons using these methods over traditional lectures.

The Paired Samples T-Test results reveal a significant difference between the pre- and post-intervention test scores for both groups. The control group (Group A) had a mean difference of 1.4 ($t_{(29)} = 2.346$, $p=.027$), while the experimental group (Group B) showed a larger mean difference of 3.5 ($t_{(29)} = 4.902$, $p<.001$). These results suggest that the use of 3D animations and inclusive discourse was more effective in improving the experimental group's understanding of earth science concepts.

By converting abstract ideas into dynamic, tangible visuals, 3D animation can help people understand and remember information better.. By presenting the interaction of various components, 3D animations help students develop mental models that enhance their understanding of complex scientific phenomena.

Inclusive discourse, on the other hand, promotes an environment that values students' diverse experiences and encourages active participation. Engaging students in discussions about 3D animations encourages them to share their insights, inquire, and collaborate to build a deeper understanding of the presented concepts.

For instance, teachers could use a 3D animation of the water cycle and engage students in discourse by prompting them to discuss their observations and connect the visualization to their personal experiences. This combination of 3D animations and inclusive discourse fosters a learning experience that is both engaging and inclusive.

The results of this study indicate that combining 3D animations and inclusive discourse can improve students' understanding and engagement in learning earth science concepts. Educators might consider integrating these strategies into their teaching practices to create equitable and effective learning experiences that cater to diverse students' needs.

The findings of this study highlight the potential of integrating 3D animations and inclusive discourse to create engaging and accessible learning experiences in earth science education. Educators can leverage these tools to foster a deeper understanding of complex scientific concepts and promote student motivation, engagement, and achievement. Future research can further explore the applicability of this approach to other scientific disciplines and age groups.

Future studies could examine the optimal design and implementation of 3D animations and inclusive discourse in various scientific disciplines and educational settings. Further investigation into the long-term effects of these approaches on students' academic achievement, science interest, and self-efficacy could yield valuable insights into their potential advantages and areas for enhancement. Such research would contribute to the development of more effective and engaging teaching strategies that foster equity and inclusivity in science education.

Conclusion

The present research examined the effects of introducing 3D animations and inclusive discourse in earth science education on students' understanding, engagement, and academic performance. The results indicated that students exposed to this innovative instructional method exhibited a more profound grasp of complex concepts, heightened engagement in learning activities, and improved academic performance compared to their counterparts in the control group.

These findings emphasize the potential benefits of integrating 3D animations and inclusive discourse in science education, promoting equitable and impactful learning experiences for diverse student populations. By nurturing a more interactive and inclusive learning atmosphere, educators can bolster students' understanding, motivation, and interest in earth science concepts.

This study offers valuable insights into the advantages of harnessing technology and inclusive teaching practices to address the specific requirements and strengths of diverse learners. Future studies should continue investigating the most effective methods for implementing these strategies across various science subjects and educational contexts while also assessing their long-term influences on students' academic pathways and career ambitions in STEM fields.

Ultimately, the results of this research highlight the significance of adopting inventive teaching practices that cater to students' diverse learning preferences and cultural backgrounds, contributing to more inclusive and successful science education for all students.

Ethics and Conflict of Interest
All ethical rules were observed at each stage of the research. The author declares that he acted in accordance with ethical rules in all processes of the research. The authors declare that they do not have any conflict of interest with other persons, institutions or organizations.

Author Contribution
All authors contributed equally to the research.

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Zahra Sadat Roozafzai holds a Ph.D. in English Applied Linguistics with a focus on TEFL. She also pursues studies in Humanities within an academic context in Europe. She served as an assistant professor at ACECR Institute of Higher Education – Isfahan. Her research primarily focuses on exploring various dimensions of language and its impact on communication, particularly within the realm of applied linguistics. With a solid background in English Language Studies, she aims to integrate her knowledge of linguistic theories with practical applications, offering applied insights into the dynamics of communication and teaching. She is

dedicated to investigating the intricate relationship between language, mind, culture, and institutions in society. Her research aims to bridge the gap between theoretical concepts and their real-world implications, particularly in the context of language teaching and learning. Additionally, her work in Communication emphasizes the importance of effective communication strategies in diverse linguistic and cultural settings.

Parisa Zaeri

Parisa Zaeri is a versatile professional with a unique blend of interdisciplinary expertise and specialized knowledge. Holding an M.A. in Computer Media Design from the University of Bauhaus and a B.A. in Digital Arts and Animation she has consistently demonstrated her passion for merging art and technology. With a keen interest in philosophical and psychological themes, Zaeri has explored these subjects through her M.A. thesis and short films. Her unique approach combines digital media, animation, and storytelling to delve into social questions of the human condition. As an accomplished artist, Zaeri has participated in various exhibitions, showcasing her distinctive vision and style. Her work has garnered attention for its innovative fusion of technology, art, and education.

APPENDIX

Pre-Intervention Test

1. What is the outer layer of Earth called?
   A) Core
   B) Mantle*
   C) Crust
   D) Atmosphere
2. What causes mountains to form?
   A) Moving plates of Earth* B) Volcanoes* C) Water* D) Ice
3. Which is the biggest ocean on Earth?
   A) Arctic Ocean* B) Pacific Ocean* C) Atlantic Ocean* D) Southern Ocean
4. What two gases are most common in Earth's air?
   A) Oxygen and Nitrogen* B) Carbon Dioxide and Methane* C) Argon and Hydrogen* D) Helium and Oxygen
5. What is a volcano?
   A) Water* B) A mountain* C) Hot air* D) Hot liquid rock
6. How many tectonic plates are there on Earth?
   A) 1* B) 7* C) 12* D) 20
7. What is molten rock inside Earth called?
   A) Lava* B) Magma* C) Crust* D) Soil
8. What forms when a volcano erupts?
   A) Ash* B) Smoke* C) Lava* D) All of the above
9. What is a crack in Earth's crust called?
   A) A tectonic plate* B) A fault* C) A volcano* D) A mountain
10. How many major volcanoes are there on Earth?* A) About 10* B) About 100* C) About 1,000* D) About 10,000

Post-Intervention Test

1. What are tectonic plates?

   A) Pieces of Earth's surface that move* B) Air layers

   C) Ocean water* D) Ice sheets

2. What makes an earthquake?

   A) Moving plates of Earth* B) Ice melting

   C) Lava cooling* D) Water flowing

3. What is the greenhouse effect?

   A) Earth's air traps heat* B) Earth's surface moves* C) Water moves in a cycle* D) A volcano erupts

4. What is a glacier?

   A) A big, moving piece of ice* B) A tectonic plate

   C) A type of ocean water* D) A type of air

5. What is continental drift?* A) Moving plates of Earth* B) Moving water in the ocean* C) Forming mountains* D) Erupting volcanoes

6. What happens when tectonic plates collide?

   A) Volcanoes form* B) Mountains form* C) Earthquakes occur* D) All of the above

7. How do tectonic plates move?

   A) By wind* B) By water currents

   C) By convection currents in Earth's mantle* D) By earthquakes

8. What is a vent in Earth's crust?* A) A crack where molten rock comes out* B) A hole in Earth's crust* C) A hot spring

   D) A type of tectonic plate

9. What is a supervolcano?

   A) A very large volcano that erupts frequently* B) A chain of volcanoes

   C) A type of tectonic plate* D) A type of lava

10. What is the most common type of volcanic eruption?

    A) A lava flow* B) A pyroclastic flow* C) An explosive eruption

    D) A steam explosion

These tested tests provide a more comprehensive assessment of students' understanding of tectonic plate movement and volcanic eruptions while maintaining an appropriate level of language complexity for the target age group and English proficiency level.

APPENDIX 2

To explore students' engagement with the teaching methods used in the intervention, the following tested interview questions were asked:

1. Which aspects of the 3D animations and inclusive discourse made learning about earth science more enjoyable or interesting?
2. How did the teaching methods used in the intervention help you stay focused and engaged during lessons?
3. Can you describe a specific moment during the intervention when you felt particularly engaged or excited about learning earth science concepts?
4. In what ways did the interactive elements of the 3D animations and inclusive discourse enhance your engagement with the learning material?
5. How did the use of 3D animations and inclusive discourse impact your motivation to learn about earth science concepts?
6. Would you be more likely to participate actively in a lesson that uses 3D animations and inclusive discourse compared to a traditional lecture-based lesson? Why?

These questions delve deeper into the students' experiences with the teaching methods, focusing on the aspects that contributed to their engagement and motivation in the learning process.

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ANALYSIS OF COMMUNICATIONAL DIFFERENCES OF PRIMARY SCHOOL STUDENTS WITH SPEECH AND LANGUAGE DISABILITY

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Abstract

The communicational differences of primary school students with language and speech disabilities were examined in this study. In the study where a nested single case design was used, interviews were conducted with 28 teacher and 35 students. The open-ended questionnaire form and semi-structured interview form developed by the researcher were used in the study. The open-ended questionnaire form was applied to the students, and the semi-structured interview form was applied to the teachers. The data obtained in the study was subjected to content analysis. As a result of the research, it was seen that primary school children encounter different problems (delayed speech, voice disorders, articulation, etc.) depending on their grade level. Students mostly use written communication in their communication processes. Students often feel alone in the communication process. They solve communication problems by getting support from teachers and families. The teacher also tries to solve the communication problems of the student's language and speech disabilities by using various activities in the learning process.

Keywords: Communication, communicative differences, disability, language barrier, speech barrier.

INTRODUCTION

Humans, as social beings, constantly communicate with their environment. Communication serves as the fundamental mechanism through which humans evolve from a biological entity into a socially integrated beings. It is the production, transfer and interpretation of information. For humans, understanding others and having information that prepares them for the society is achieved through communication from a young age. In this process, individuals use many channels and try to learn sometimes verbally, sometimes non-verbally and sometimes using body language with their individual differences (Tuna, 2012). However, in the learning process, individuals encounter some obstacles due to hereditary, congenital and later (disease, accident etc.) events (Doğru et al., 2013). Such a situation reveals the importance of the concept of disability. Disability occurs in individuals who, unlike other individuals, have long-term physical, mental, intellectual or perceptual disorders. Disabled individuals have been defined as people who are excluded and unwanted in society throughout the historical process. As a result, individuals with disabilities are expressed as disadvantaged groups of society (Orhan and Özkan, 2020). Although they are considered disadvantaged individuals, they constitute a significant part of the world's population. For example, there are approximately 15% of disabled people in the world and 39 million in Europe. According to the Eurostat study (2012) presenting statistical data of the European Union, the rates of disabled people over the age of 15 are 21.4% in Bulgaria, 21% in Germany, 20.1% in Denmark, 19.7% in the USA, 18% in Greece, 16.7% in Spain, 15% in Cyprus, 14.5% in Italy and 13.6% in France. In terms of the disabled population, 5.9% of disabled individuals live in Japan, 10.5% in Cameroon, 12.2% in India, 18.5% in Australia and 13.7% in Canada. In a study conducted in the USA in 2012, 7.7% of children aged 3-17 had communication disorders. The most common communication disorder was speech disorder (speech sound disorder, stuttering) at 5%. The research also revealed that one third of the language and speech problems of children between the ages of 3 and 10 were accompanied by additional problems, speech problems occurring alone were 41.8%, language problems were 13.6%, voice problems were 6.3% and swallowing problems were 4.3%. In

the study conducted in the United Kingdom, it was concluded that there was a receptive language delay/disorder in children aged 7 and under between 2.63% and 3.59%, the prevalence of expressive language delay/disorder was between 2.81% and 16%, and the prevalence of both receptive and expressive language delay/disorder varied between 2.02% and 3.0%. According to the World Health Organization, taking the broader Turkish population into consideration, 3.5% of individuals have language and speech problems (Konca, 2021).

The 2002 data of the Turkey Disability Survey shows that 12.3% of the population is disabled. 1.3% of disabled individuals in Turkey are orthopedically disabled, 0.6% are visually impaired, 0.4% are hearing impaired, 0.4% are language and speech impaired, and 0.5% are visually impaired. It is stated that 0.2% of individuals registered in the National Disability Database in 2010 had language and speech impairments (Yanıkkerem & Esmeray, 2017). In the research, approximately 30% of individuals experience stuttering and other speech disorders, 46% have 'complete' and 26% have "partial language-speech disability (Kırman & Yıldım Sarı, 2011).

Communication constitutes a complex process encompassing an individual's linguistic competencies and verbal articulation capabilities. Language is a dynamic and complex structure consisting of symbols that emerge from transferring ideas and communicating, and that are agreed upon with common rules (Aslan, 2023). Through language, the individual provides feedback to incoming stimuli using communication channels (Otagburuagu, 2009). In this process, language and speech interact and are affected by each other. Otherwise, the failure of sounds to perform their duties with motor, cognitive and linguistic processes (respiration, vocalization, resonance and articulation) negatively affects both communication channels and causes the individual to encounter language and speech disorders. Language disorders are the difficulties experienced by the individual with expressive language, receptive language or pragmatic language. Speech disorders are the individual's voice, fluency or pronunciation attracting the attention of the other individual. As a result of the individual's speech disability, communicative actions such as understanding, naming, writing, and reading do not work actively (Sharp & Hillenbrand, 2008; Tanrıdağ, 2009; Aydın Uysal & Tura, 2018). In other words, language and speech disabilities make it difficult to understand sound and language functions.

Table 1. Classification of language and speech difficulties (Ateş, 2024, p.20).

A) Speech Disorders	**B) Language Disorders**
I. Articulation Disorder	1. Specific Language Disorder
1. Omission (Lowering the Voice)	2. Aphasia
2. Substitution (Changing the Voice)	3. Delayed Speech
3. Addition of Voice	**C) Language and Speech Disorders Due to Different Causes**
4. Distortion of Voice	1. Language and Speech Disorders Due to Hearing Problems
	2. Speech Disorders Related to Cleft Lip and Palate
II. Voice Disorders	3. Language and Speech Disorders Due to Learning Disorders (Dyslexia)
1. Pitch Disorder	4. Language and Speech Disorders Due to Autism
2. Loudness Disorder	5. Language and Speech Disorders Due to Mental Retardation
3. Voice Quality Disorder	6. Language and Speech Disorders Due to Traumatic Brain Injury
III. Disorders in the Flow of Speech	7. Bilingualism - Foreign Language and Regional Speech Differences
1. Rushed-Complex Speech	
2. Stuttering	

Individuals' disabilities hinder their communication processes. Their inability to hear the voices around them causes them to have difficulty in communicating (Oktekin & Çavuş, 2019) because communication is a process that involves the individual's language and speaking skills. Language and speech disorders are categorized as "speech disorders (articulation/pronunciation disorders, voice disorders, speech flow disorders); language disorders and other language and speech disorders" (Yanıkkerem & Esmeray, 2017). These disabilities are widely seen in the world. For example, in the United States, approximately 1.3 million students are provided with special education services under the primary diagnosis of speech disorder and/or language disorder. This disability is defined as the second most common disability service category in the US public education system. These disabilities

in children cause their writing and many other skills to be underutilized as children expand their vocabulary via speaking (Werfel et al., 2021). As Lev Vygotsk stated in 1968, language is an effective tool in human communication. It shapes children's cognitive knowledge and social communication at school and thus children build knowledge by gaining experience (Akpan et al., 2020).

Current Study

Children gain experience in many ways. These experiences are a determining factor in the status of disability. In research, these factors are considered with various variables (such as age and school levels). For example, there are language and speech disabilities observed in preschool children (Finneran, Leonard, Miller, 2009; Cunningham et al., 2017) and first-grade primary school children (Werfel et al., 2021), difficulties experienced by stuttering students (Pistav Akmese, Kayhan, & Akmese, 2024), teacher attitudes towards stuttering (St Louis et al., 2016; Elrefaie, El Ella, El Halim, & Gobran, 2022), literature studies (Robinson, 1991; Sharp & Hillenbrand, 2008; Tohidast, et al., 2020), variables that cause speech and language disorders (Fox, Dodd, & Howard, 2002). In this regard, the literature and studies conducted on preschool children are more intense. However, there are not many studies on primary school-age children who constitute basic education, and the teacher factor is not examined in detail in this age group.

As Chomsky stated, the relationship established between language and mental structure affects the individual's speech structure (Başaran, 2024). This effect is more prominent at the primary school level with the concrete period. Language skills such as reading, writing, speaking, and listening become meaningful in the mental structure with the education given in primary schools. On the other hand, some children cannot use their language skills sufficiently in the formal education given in this period. The most basic reasons for this include the parents's resistance in accepting their child's disability. Another reason is that the physical disability of the child not being fully determined when taken to the doctor. An effective diagnosis is made only when the family's complaints and observations are shared with experts. Both the family and teachers ignore the child's language and speech disabilities, and when one of the family members experiences similar problems, he / she adopts the belief that "he/she will talk anyway". Considering that these and similar reasons are based on genetic, emotional, neuropsychiatric, idiopathic reasons, children are expected to be checked under the supervision of a specialist and receive training in this regard (Konca, 2021). This study aims to examine language and speech difficulties in primary school students, investigate how these difficulties affect communication patterns, and explore teachers' perspectives on children's language and speech development through a review of relevant literature. The reason for considering the student and teacher dimensions together is that it is very unlikely for primary school children to express themselves and have general information about their disabilities, but the most detailed information about children's language and speech disabilities will come from teachers. In other words, information about language and speech disabilities was obtained from teachers who know children as well as their families. Thus, the research is considered important in terms of providing insights on the training and suggestions carried out by teachers in the teaching-learning process for students with this disability for future studies, other teachers who are the implementers of the curriculum, and families who educate the child informally. Based on these considerations, this study jointly examines primary school children's language and speech challenges and their teachers' perspectives on these issues.

The following questions were sought in the study:

1. What are the effects of primary school students' language and speech disabilities on communication differences?

2. What are the opinions of primary school teachers about language and speech disabilities of primary school students?

METHOD

Research Model

The research employed an embedded multiple case study design, which incorporates several distinct cases within the framework of investigation. These cases in the studies are addressed with more than one unit of analysis and different data sources are used to reveal the situation (Yin, 2017). In the study, language and speech were addressed and examined as separate units in 1st, 2nd, 3rd, and 4th grade students. In other words, the language and speech disabilities of the students in the 1st, 2nd, 3rd and 4th grades included in the scope of the research were examined by dividing them into various subunits depending on their own conditions. For example, the language and speech disabilities of children were addressed with subunits such as articulation disorder, delayed speech, voice disorder, stuttering in the case of their effects on communication differences. Similarly, teachers hold perspectives regarding various factors affecting children's speech development, including cognitive ability, auditory function, neuromuscular health and coordination, emotional well-being, and oral-structural elements such as jaw formation and dental alignment.

When using the embedded multiple case design in the study, firstly data sources based on the questions of "why?" and "how?" were used. Situations that cause students' language and speech disabilities and events related to how they happen were examined. The study also aimed to identify the instructional approaches teachers implement in educational settings when addressing these communication challenges. Then, the research problem was determined, the study group was decided, and data were collected with an open-ended questionnaire and semi-structured interview form. Finally, the data were analyzed and reported.

Participants

The sample population of the study comprised 35 students and 28 primary school teachers from educational institutions located in Siirt City Center. The participants are 21 female students and 14 male students. 10 of the students are in the 1st grade, 15 in the 2nd grade, 5 in the 3rd grade, and 5 in the 4th grade. 18 of the primary school teachers are female and 10 are male. In terms of seniority, one teacher has 3 years, 6 teachers have 11-15 years, and 21 teachers have 16 years or more seniority. The participants in the study were determined through criterion sampling. Criterion sampling is carried out according to a set of predetermined criteria (Baltacı, 2018). The research criteria must definitely be suitable for the purpose of the research (Creswell & Clark, 2016). In this study, the criteria are primary school students with speech and language disabilities and their teachers. In determining these students and teachers, the Ministry of National Education Siirt Provincial Directorate of National Education was contacted and the necessary permissions were obtained, and within the framework of the permissions, communication was established with school administrators and students with language and speech disabilities in schools were tried to be determined. After the students were determined, information was obtained from the class teachers of these children about their disabilities. Later, interviews were conducted with the children in the room of the Psychological Counselor and Guidance Teacher with guidance support.

Data Collection Tools

A semi-structured interview form developed by the researcher, an open-ended survey, and document analysis were used as data collection tools in the study. Interviews that examine individuals' feelings and thoughts in detail (Braun & Clarke, 2013) are used in different types depending on the purpose of use in research. One of these types is the semi-structured interview. In a semi-structured interview, the researcher has prior knowledge about the general framework of the subject and has a flexible feature (Büyüköztürk et al., 2020). The semi-structured interview form applied to teachers initially consisted of six questions, and was reduced to five questions with criticism and suggestions from experts. Experts have expressed their views on determining the causes of speech disability in children and what kind of educational activities should be carried out in children with language and speech disabilities.

The open-ended survey was applied to students. Five questions of the survey form were optional, and the sixth question consisted of an open-ended question to obtain students' thoughts on communication. Expert validation was first obtained for the survey instrument. The open-ended questionnaire incorporated specialist perspectives regarding the etiology of children's language and speech difficulties, as well as the impact of these communication challenges on interpersonal interactions.

For the semi-structured interview and open-ended survey form, face-to-face interviews were conducted. The interview form was given to the teachers in writing and the teachers and the researcher exchanged views on the subject in a conversational manner. Throughout the data collection phase, the researcher systematically gathered comprehensive information about the student participants. Individual interviews were conducted with each respondent to ensure depth and authenticity of the qualitative data. The interviews were conducted for 20-25 minutes. At the same time, the researcher conducted interviews on different days and times to obtain more in-depth information from the participants. The interviews with the students were conducted under the supervision of the Psychological Counselor and Guidance Teacher and sometimes with the accompaniment of the class teacher and guidance teacher. The researcher and experts worked together in the guidance service to make the students feel comfortable and not experience anxiety. The data obtained from the last question were directly quoted through document analysis and interpreted in the findings section. As it is known, documents can be written documents and pictures obtained without the intervention of the researcher (Kıral, 2020). They can be documents in the form of primary and secondary sources (Balcı, 2006). Since the drawings made by the student himself/herself were used in the findings section in the research, data were obtained from primary sources. Here, in the open-ended survey form prepared for the students, they drew the classroom of their dreams and the student drawings were used to support other views in the survey form.

Data Analysis

MAXQDA, a qualitative research program, was used in the analysis of the data. While conducting content analysis in the program, the interview data conducted with teachers and students were first transferred to the computer environment. The researcher read the opinions in detail and reached various codes from each opinion read. These codes were then transferred to the computer and a code list was created. The words and expressions in the interviews were recorded in the code list. The researcher prepared a code list on the computer and recorded the words and expressions in the interviews into this list. Another expert's opinion was consulted for the reliability of the codes. The reliability between the opinions of the two experts was calculated. The reliability of the research was calculated as .89 by calculating with the consistency coefficient calculation formula developed by Miles and Huberman (1994).

After the researcher carefully examines the units of analysis, the comments and explanations of the participants are noted. In the interviews, the researcher codes the sections he/she understands with three or four words and after the coding process, the codes are grouped according to their similarities and differences. In creating the themes, literature and participants' opinions were used. In all these processes, MAXQDA was used as a qualitative program. The themes and relationships between codes were visualized using the Code-Subcode-Sections Model with the MAXQDA program. The visuals were presented as figures in the findings section. The frequency of repetition of codes was indicated in the figures.

Validity and Reliability

There are some ways to ensure validity and reliability in qualitative research. One of these ways is credibility, others are transferability, durability and confirmability (Patton, 2021). Credibility (internal validity) is the use of the best expressions about the accuracy and falsity of inferences obtained from a concept. Credibility is established through long-term interaction, continuous observation, and diversification (Arslan 2022). In this research, the data were diversified and associated through open-ended questionnaire form, semi-structured interview form and document analysis. Transferability (external validity) is related to the application and generalization of research results in similar situations (Miles, Huberman, & Saldaña, 2014). The study implemented a thorough participant briefing, wherein

students received comprehensive explanations regarding the instrumentation and data collection procedures. This approach aligns with the methodological principle of thick description, enhancing the transferability of the research findings. Another way to ensure transferability is purposeful sampling. Criterion sampling, one of the purposeful sampling types, was used in the research.

In the study, consistency and confirmability were examined for reliability. According to Yıldırım and Şimşek (2021), consistency is examined for compliance between the mentioned data. In confirmability, the results obtained are supported by previously collected data. In this study, consistency between coders was examined and the participant opinions were transferred to the text without any changes. In addition, the findings obtained by analyzing the data were shown in tables and direct quotes were included. When quoting from the interviews, T code was used for teachers and S code was used for students.

RESULTS

The effects of primary school students' language and speech disabilities on communication differences

74.29% of students use written, 11.43% use visual, and 14.28% use nonverbal communication. 42.87% of the students' source of disability is articulation disorder, 22.86% delayed speech, 11.43% voice disorder, 14.28% stuttering, 5.73% speech disorder due to hearing impairment, and 2.83% speech disorder due to cleft palate brain disability. Non-verbal communication is mostly used by 1st-grade students, and written and visual communication is used by 2nd, 3rd and 4th-grade students.

Students' language and speech difficulties have demonstrable adverse effects on their communicative competence and interpersonal interactions. 80% of students stated that they felt lonely, 11.43% stated that this situation did not affect them much, and 8.57% stated that they felt excluded. The common view of 1st and 2nd grade students was that they felt lonely, but for 3rd and 4th grade students, this situation did not affect them. 22.86% of the students (3rd and 4th grade students) stated that they solve the problems they encounter in the communication process themselves, 57.14% of the students (1st, 2nd, 3rd, 4th grade students) receive support from their families, 20% of the students (1st, 2nd, 3rd, 4th grade students) receive support from teachers. The best ways these students learn are 62.86% (1st, 2nd, 3rd, 4th grade students) by listening, 22.86% (2nd, 3rd, 4th grade students) by writing, 8.57% (3rd, 4th grade students) by using gestures and facial expressions and 5.71% (1st, 2nd, 3rd, 4th grade students) by seeing. The views of primary school children regarding the classroom environment they want to receive education in, depending on their communicative differences, and the drawings related to these views are given below.

Picture 1. S1 and S30 students' perspective on the concept of communication.

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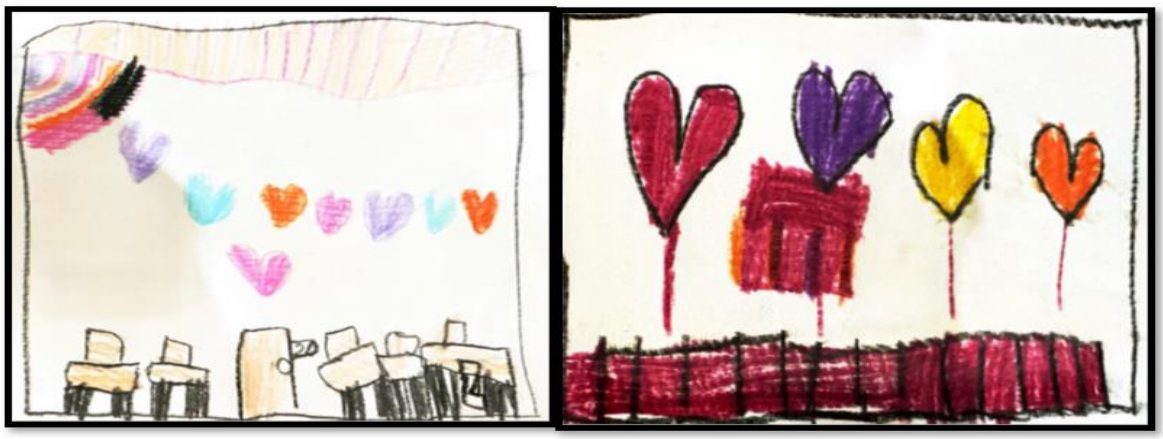
Picture 2. S9 and S22 student's perspective on the concept of communication.

Picture 3. S5 student's perspective on the concept of communication.



Picture 4. S14 and S18 student's perspective on the concept of communication.

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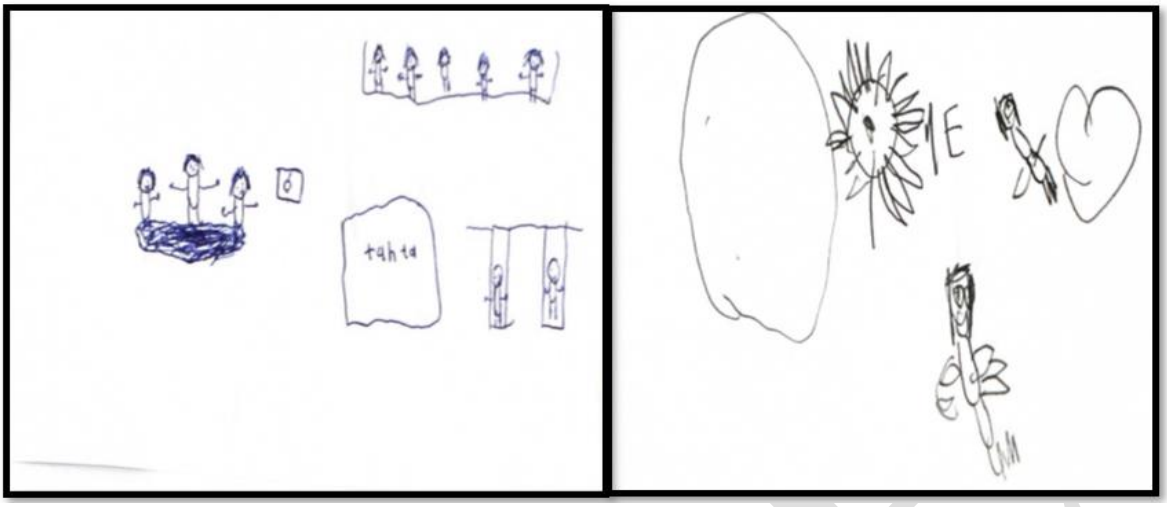

Picture 5. S16 and S29 student's perspective on the concept of communication.

As illustrated in the picture 1 and picture 2, children explained communication by associating it sometimes with their classmates, sometimes with their neighbors, and sometimes with the images in their dreams. In the process of associating, as in the pictures drawn, the age factor is an effective factor. In other words, there is a difference between the communicative images used by first-grade students and the images used by fourth-grade students in drawings. These differences become apparent with muscle-mind coordination.

Primary school teachers' views on primary school students' language and speech disabilities

According to teachers, children's speech disabilities include 7.14% intelligence, 21.43% hearing, 35.71% neuromuscular health and coordination between them, 25% emotional state, 10.72% jaw structure and teeth disorders.

The majority of children have delayed speech, voice disorders, articulation disorders, and stuttering disabilities. Teachers' views on language and speech disabilities are listed below at figure 1:

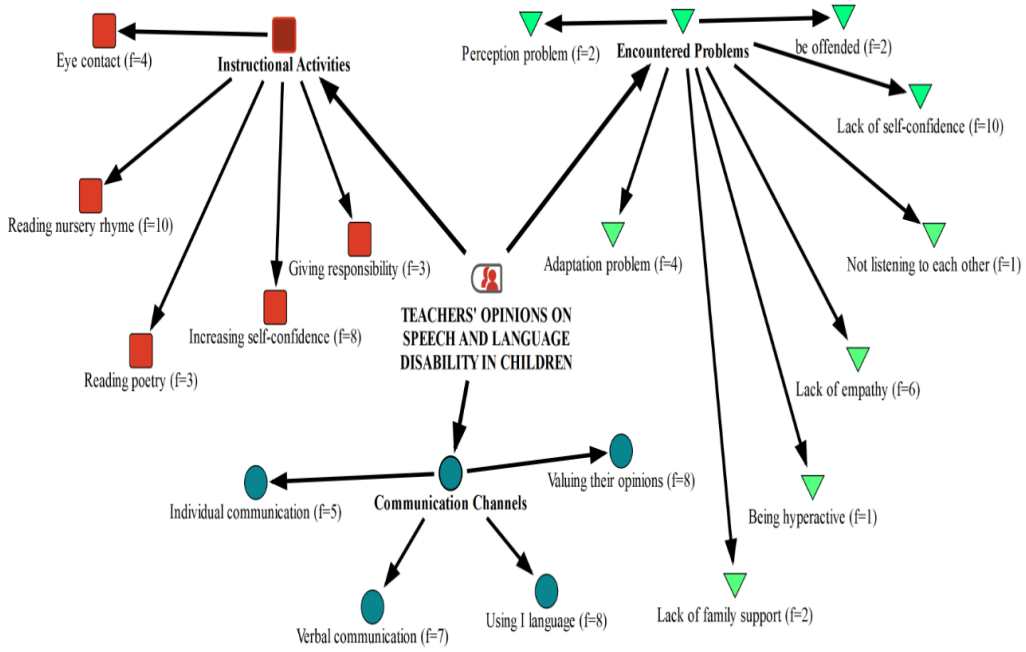

Figure 1. Teachers' views on language and speech disabilities in children - Code-Theory Model.

T1: I do a lot of tongue twisters for students. I do activities with pictures. …The most common problem encountered in these children is lack of self-confidence.

T5: I make eye contact with students. I use my gestures and facial expressions a lot. These students get upset very easily.

T8: I give a lot of space to listening and speaking activities. Storytelling, listening, theatre, sports activities…

T9: One-on-one activities are done… I tell jokes.

T10: I have them memorize tongue twisters and counting. I use my gestures and facial expressions and make eye contact. There are usually perception problems, comprehension problems, forced listening, body language, and facial expression problems.

T12: I have them do tongue twisters. We do activities that develop self-confidence skills. I show that I care about the student. I encounter the problem of not speaking a lot.

T13: I do letter and word formation activities for children with language and speech disabilities. I give importance to tongue, lip and jaw movements. I make them repeat a lot. The communication channels that students use the most are verbal and visual communication. I make eye contact. I read facial expressions. The most common problem I encounter during the teaching process is developing listening skills.

T14: Children generally have similar problems in their family history. They often have articulation disorders. I do tongue twister activities a lot. I give them tasks in the classroom so that their reading skills are similar to other students. I am especially careful to make eye contact with the child. …I have the biggest problem with not listening in the classroom…. For this reason, I give them responsibilities.

T15: My student stutters. I do lots of reading activities for this student of mine. I have the most confidence problems with this student. He is a very introverted child. I try to include him in group activities as much as possible.

T16 : There are a few students in my class. Some have voice disorders and some have stuttering. They have just started school. They are very shy and have problems expressing themselves… Their motivation is low… I try to include them in class activities with games.

T18: My student has a disorder related to nerve and muscle health. He has a delayed speech and stuttering. I have this student do tongue twisters. I make more eye contact than other students. This student has a perception problem. He has difficulty listening. He cannot use his gestures and facial expressions sufficiently. I include him in the learning process with game-based activities.

T19: Our class is very crowded. Sometimes we cannot do enough educational activities. When we have time, we work on making sounds correctly. I use verbal, visual and auditory channels. Sometimes I also get support from technological means. …..The families of such children do not accept this situation easily. …When the classes are very crowded, we do not know how to teach such students. However, we try to take individual differences into account, but the room is not enough.

T22: My student with nervous and muscular health stutters. …….I am trying to communicate verbally with these students. I make them play games. ..they have a lot of lack of self-confidence. ….they also have problems with adaptation….I chat with them so that they feel safe.

T24: I have them read simple syllables out loud. I do face-to-face individual activities. I communicate verbally. I give feedback immediately. I try to make the messages concrete but still have a lack of self-confidence…..I try to get support from the family.

T25: My student has an emotional disability. He has a delayed speech and articulation disorder. He was taken to a language education therapist by his family. I communicate with this student face to face. I ensure his participation in the lesson by answering questions throughout the lesson. …not understanding

the instructions given due to lack of attention, not taking it personally…understanding the instructions given after one-on-one warnings…hyperactivity. He is constantly busy with something…

T26: Language and speech difficulties…She has a delayed speech impediment. She cannot read clearly when reading aloud. She also has problems expressing. …I communicate one-on-one. …I have her tell jokes in class. I encourage her to sing.

T27: He has an emotional disability. He has a delayed speech due to speech impediment…we do listening and speaking exercises. Sometimes we do sports activities. I tell stories. …I use techniques such as arranging an environment where the child can be interested and active in auditory stimuli, and dramatization. …delays in the child's language and speech development can cause some inadequacies and lack of self-confidence in the student.

T28: He has an articulation disorder. I have him describe the objects around him and make predictions. ..when communicating with children, I communicate with them by making eye contact and giving notifications. I have encountered problems such as students getting bored and sulked easily during the communication process. We overcame the problem by encouraging the student and giving feedback.

DISCUSSION, CONCLUSION, and SUGGESTIONS

Communication established between two or more people is the ability to talk, converse and maintain good relationships. Communication, which goes beyond understanding what is said, is the set of elements that enable appropriate reactions to be presented. Individuals transfer the information they have internalized from generation to generation through communication, which varies from individual to individual (Tuna, 2012). Findings indicate that participants demonstrated a preference for written communication modalities. This tendency can be contextualized within developmental frameworks wherein individuals, from early cognitive development through maturation, acquire understanding of neurological functioning, social constructs, and native language acquisition through various communicative channels. They do this sometimes by listening, sometimes by writing and most importantly by speaking (Girgin, 2006). In the study, it was seen that the sources of obstacles for children are mostly articulation disorders, delayed speech, voice disorders and stuttering. In a study conducted by Thapa, Okalidou and Anastasiadou (2016) in Nepal, the rate of speech and language disorders seen in the primary school period is 8.11%. In particular, general speech problems are 4.68% and language problems are 8%. Again, in the study, the prevalence of speech-language disorders according to their subtypes was reported as 2.95% for articulation/phonological problems, 2.09% for stuttering, 3.42% for voice problems, 4.97% for receptive language problems, and 7.74% for expressive language problems. In Turkey, the number of hearing and speech impaired individuals is determined as 377,000, and the population of hearing and speech impaired who are of reading age and studying is determined as 135,000. The education of such disabled individuals is seen as important in society. For this reason, there are 48 primary schools for the hearing and speech impaired and 8 multi-program high schools (vocational schools) for the hearing and speech impaired in Turkey (Öztürk, 2012). It seems that heredity, as well as other disabilities, have an impact on the developmental characteristics of such individuals with language and speech disabilities. Pregnancy, premature birth and miscarriage risks, prolonged bottle use, sucking habits, and ear problems have negative effects on speech and language development (Fox, Dodd, & Howard, 2002). According to Robinson (1991), the gender variable is effective in this process. Half of the study conducted on 38 boys and one girl had a history of hereditary speech-language disorders. Similar problems were encountered in the siblings of the children. Aetiological factors were encountered in 26%, 11% before birth, 3% during birth, and 12% after birth. 21% of children had a seizure, 7% had a seizure after age eight, and 22% walked for the first time after 18 months (Robinson, 1991). Beitchman's (1986) study found that children with speech and language disorders were more stressed, had increased attention deficits, and had various psychiatric problems, with these problems being more common in girls. Similar results can be seen in the studies by Fox, Dodd, and Howard (2002). The study emphasized that between 28% and 60% of children with speech and language disabilities had a sibling and/or parent with speech and language difficulties. When this rate was examined in terms of gender, it was higher in females.

The developmental period of the student is important in terms of language and speech. Especially primary school children use writing, listening and speaking skills along with reading skills. These children also perceive the world concretely and their language development develops rapidly. When looked at worldwide, age ranges for language and speech disorders may differ from each other. In 2012, 8% of children between the ages of 3 and 17 in the USA had voice, speech, language or swallowing disorders. In particular, one third of children between the ages of 3 and 10 and one quarter of children between the ages of 11 and 17 had these disorders (Black, Vahratian, & Hoffman, 2015). In the United Kingdom, 6% of children have speech and language delays. At the same time, 29% of children have minor speech and language problems by the age of 4 and 8% by the age of 7 (Law et al., 2000). Similar problems are seen in approximately 6%-9% of children in South Africa. In Australian children, these rates vary from 1% to 21%, and the prevalence of speech and language is more common in young children (Langbecker et al., 2020). Young children also face obstacles in producing certain sounds. In their study on preschool children in Ontario, Canada, Cunningham et al. (2017) stated that children with speech and language disorders have changes in their skills such as the pronunciation of consonants, the use of grammatical markers and speech fluency. Thus, children with language disorders experience greater difficulty in vocabulary acquisition and learning new words compared to their typically developing peers (McGregor et al., 2002).

According to teachers, students have physical, intelligence, neuromuscular health and coordination between them, emotional state, hearing, jaw structure, dental disorders, language and speech difficulties, and language and speech disabilities originating from heredity. Articulation disorders, stuttering, cleft palate and brain disabilities and speech disorders are the most common disabilities. Teachers mostly establish eye contact, assign in-class tasks and responsibilities, listen to students, make them feel valued, direct them to language education therapy, do tongue twister activities, and provide individual education for students with language and speech disorders. The teacher's attitude is considered extremely important in the problems experienced by children with language and speech disabilities. The teacher's gestures-facial expressions, attitudes, and stance have an effect on the child's stuttering (Guitar, 2013). Stuttering is not limited to this; it reduces the individual's social and individual quality of life (Kathard et al., 2014). For example, in a study conducted in Cairo, it was stated that positive attitudes of teachers were effective on students with this type of disability (Elrefaie, El Ella, El Halim, & Gobran, 2022). Stuttering disability encountered in preschool and primary school children is a very determining factor on socialization and communication. Because children who are bullied by their peers in the school environment exhibit introverted behavior due to their disability (Mallick, et al., 2018). For this reason, teachers should prepare various plans-programs for children who have language and speech problems in all kinds of classroom environments. If necessary, they should receive support from the family (Le, et al., 2020). According to Pistav Akmese, Kayhan, and Akmese (2024), it should be decided how to communicate with children and a strong communication network should be created.

As a result of the research, students have physical disabilities, intelligence, neuromuscular health and coordination between them, emotional state, hearing, jaw structure, dental disorders, language and speech difficulties, and language and speech disabilities due to heredity. Articulation disorders and speech disorders are mostly included among the disabilities. In addition, it was concluded that there are speech disorders due to stuttering, cleft palate and brain disabilities. Teachers apply practices such as establishing eye contact, developing self-confidence skills by giving tasks and responsibilities in the classroom, creating the feeling that the student is listened to and valued, directing them to language education therapy, doing tongue twister activities, and providing individual education for students with language and speech disorders. The students stated that they use written and visual communication a lot, that they are mostly affected when their friends do not communicate with them, and that they receive support from their families and teachers in such a situation. In their study by Maviş et al. (2005), teachers emphasized genetic, psychological and mental disabilities among children's language and speech disabilities. Teachers who encounter these disabilities are expected to be knowledgeable above all else. However, according to Konca (2024), teachers do not have sufficient knowledge and experience regarding the diagnosis and evaluation of language and speech disabilities. The absence of specialized

training for teachers on diagnostic and evaluative methodologies, coupled with limited awareness of available professional development programs, impedes effective educational interventions for students with language and speech difficulties. Thus, teachers who do not have sufficient equipment for individuals with language and speech disabilities do not know which technological tools and materials to use in the classroom.

Limitations and Future Research

The research examined the language and speech disabilities of primary school children. Studies can be conducted for other grade levels. In particular, the language and speech disabilities of preschool children can be determined. The problems experienced by children with language and speech disabilities can be determined. These problems can be investigated in terms of gender, class level, teacher and parent. At the same time, the learning preferences of children with language and speech disabilities can be determined and their successes related to this learning can be examined.

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Ethics and Conflict of Interest

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Data availability

The data that support the findings of this study are available on request from the corresponding author.

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PRIMARY SCHOOL TEACHER CANDIDATES' PERSPECTIVES ON CLASSROOM ENVIRONMENT DESIGN

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Abstract

The purpose of this research is to explore prospective teachers' perspectives on the physical arrangement of an ideal classroom as a learning environment. A phenomenological design was used in this study to reveal the views of prospective teachers about the components and features of an ideal, desired classroom environment. Fifteen teacher candidates in their 4th year in the departments of primary education, science education, and social studies education participated in the research. In the study, two main themes (My classroom, My Advantages) along with ten sub-themes were created regarding the classroom environments envisioned by the prospective teachers. As a result of the analysis, six (6) sub-themes were identified under the theme of "My Classroom": technology-supported classroom, laboratory classroom, well-equipped classroom, interactive classroom, nature-based classroom, and flexible classroom. Under the theme of "My Advantages", four (4) sub-themes were identified: one-to-one teaching, active participation, activity-based learning, and attention-grabbing features. The findings show that teacher candidates believe that the physical environment of classrooms should be different from the traditional classroom layout. They are aware of the importance of providing individualized attention to students and have designed technologically equipped, spacious, and flexible classrooms where they can implement engaging activities that will sustain their students' interests.

Keywords: Ideal classroom environment, design, phenomenology, primary school.

INTRODUCTION

The most important factor that distinguishes formal education from lifelong education processes is the necessity of a planned and programmed education provided within a defined setting. Classrooms created in schools by considering the developmental characteristics of students are the environments where teaching and learning take place. The goal of education is to foster desired behaviours in individuals through effective teaching. In order to achieve this goal, it is essential to have classroom environments suitable for teaching, because a classroom serves as a communal area where educational activities take place for specific educational objectives (Aydın, 2012).

Central to the achievement of the goal of education and the effective execution of teaching activities is the classroom environment. Numerous studies in the literature suggest that the physical arrangement of the classroom positively affects learning (Evans, 2006; Fischer, 2001; Suleman & Hussain, 2014; Verschaffel et al., 1999; Wasnock, 2010). The common conclusion reached in these studies is that the classroom environment positively affects the students' learning process and enhances overall performance. Establishing a high-quality learning environment fosters student interaction, collaborative learning, and the development of intellectual skills, which enhances student outcomes (Evans, 2006; Tanner, 2009).

In the contemporary era, in which technology and digitalization are advancing rapidly, individual interests and needs are also evolving at an unprecedented pace. Schools are recognised as the pivotal agents of this change. In order to respond to changing demands and needs, expectations from schools and classroom environments where teaching takes place are also changing. As posited by Harvey and Kenyon (2013), contemporary pedagogy and learning methods do not support traditional classroom environments. The education programs implemented today have been designed according to the

constructivist approach, which supports this understanding. Constructivism is a learning approach in which students access information autonomously and construct meaning based on their prior experiences by creating an effective learning environment under the guidance of the teacher (Doğanay & Sarı, 2012). Consequently, a constructivist classroom environment should differ from the conventional classroom environment. A variety of studies have been conducted on how the classroom should be organized (Aldridge, Fraser, & Taylor, 2000; Brooks & Brooks, 1993; Doğanay & Sarı, 2007; Fosnot, 1996; Taylor, Fraser, & Fisher, 1997; Yager, 1991). The classroom environment commonly addressed in the studies includes technology-integrated arrangements that facilitate the activation of students' prior knowledge and experiences and promote collaborative work.

The teacher plays the biggest role in creating a classroom environment that aligns with the curriculum philosophy. This is because the teacher is responsible for determining instructional methods considering the personal and developmental characteristics of the students and implementing the curriculum most effectively. Şahin (2019) asserts that the decision made by the teacher, who is responsible for modifying the classroom setting, when necessary, in order to enhance student success and to carry out activities in accordance with the program objectives, is crucial for improving lesson effectiveness and ensuring student participation in the lesson.

In order to carry out teaching activities in the classroom, the teacher' primary responsibility is to cultivate a classroom environment where students can feel a sense of belonging (Scott, Leach, & Bucholz, 2008). As suggested by Bucholz and Sheffler (2009), the classroom environment designed by a teacher either increases or decreases students' learning aptitude and their sense of comfort in the classroom. Hence, teachers need to establish a classroom environment that is open to learning (Cookson, 2006). Furthermore, Verschaffel et al. (1999) identified students' ability to participate in the lesson more actively, construct their own knowledge, and to develop cognitive skills as pivotal features of effective learning environments.

The physical organization and design of educational settings are recognized as crucial factors in ensuring the efficiency of the educational process and improving learning outcomes (Ahmad & Amirul, 2017). Learning environment design is defined by Lefoe (1998) as determining teaching methods and planning the instructional environment for practice. Learning environment design is a complex whole that encompasses different variables. It is teachers who assume control over these variables and guide learners toward achieving desired learning outcomes (Wilson, 1995).

Classrooms are the most important environments where students interact with each other and their teachers. The classroom environment where teacher-student interactions are most intense plays a significant role in the emotional, social, and cognitive development of students. (Evans et al., 2009). Therefore, it is essential to create classroom environments where teachers can apply their teaching skills, which are shaped by their pre-service education. In this sense, the classroom settings preferred by prospective teachers in the light of the knowledge and skills they have acquired are getting highly important for identifying their areas of application. This study seeks to explore prospective teachers' perspectives on how the physical arrangement of an ideal classroom, as a learning environment, should be. It also aims to determine their views on the classrooms they would like to have in the future and offer insights into potential learning environments.

METHOD

Research Design

The study employed a phenomenological design, one of the qualitative research methods. Phenomenological studies delve into how people make sense of a phenomenon and how meaning is constructed at the level of consciousness (Patton, 2014). In this study, phenomenological design was chosen since the research aimed to explore prospective teachers' perspectives on what constitutes the ideal, or desired classroom environment and what characteristics it should have.

Participants

The convenience sampling method, which is one of the purposive sampling methods, was utilized in the study. Neuman (2012) argues that in the purposive sampling method, individuals to be interviewed are selected considering their relevance to the research topic, rather than their ability to represent the universe (Neuman, 2012). In addition, the convenience sampling provides the researcher with an easily accessible group and the research gains speed and practicality (Yıldırım & Şimşek, 2011). In this context, 15 fourth-year teacher candidates from the departments of primary education, science education, and social studies education, where the researcher taught, were selected as the study group. The reason why the study was limited to fourth-year students in these departments was that they had taken the theoretical educational sciences courses required to design the ideal or desired classroom environment.

Participation in the study was on a voluntary basis. The characteristics of the prospective teachers who participated in the study are presented in Table 1.

Table 1. Distribution of the study group by department and gender

Participant	Gender	Departments
S1	F	Primary Education
S2	M	Primary Education
S3	F	Primary Education
S4	F	Primary Education
S5	M	Primary Education
F1	M	Science Education
F2	F	Science Education
F3	F	Science Education
F4	F	Science Education
F5	F	Science Education
Sos1	F	Social Studies Education
Sos2	M	Social Studies Education
Sos3	M	Social Studies Education
Sos4	M	Social Studies Education
Sos5	M	Social Studies Education

A total of eight participants were female and seven were male (codes were assigned based on their departments rather than their names). There were five prospective teacher volunteers from each department (Primary Education, Science Education and Social Studies Education).

Data Collection Tool and Process

In this study, an open-ended opinion form developed by the researcher was used as the data collection tool. In order to ensure content validity, the form was finalized after the relevant literature was reviewed and expert opinion was obtained from two faculty members specializing in education management, and curriculum and instruction. With this data collection tool, prospective teachers were asked to design a classroom environment and justify their drawings. They were asked to explain why they chose such a classroom environment and describe the advantages of the classroom environment they conceptualized. The drawing method was preferred to allow individuals to express themselves and reflect on their emotions and thoughts (Barrantes-Elizondo, 2019; Schratz & Steiner-Löffler 1998). Additionally, the data obtained through this method were believed to contribute to the research objectives (Bland, 2018) since they could be treated and analysed as a form of text (Bland, 2012).

The prospective teachers participated in the face-to-face interviews, and a voice recorder was used to record the sessions obtaining the respondents' consent. A total of 15 prospective teacher volunteers were interviewed, and the interviews lasted approximately 20-25 minutes, 350 minutes in total. The interview recordings were transcribed verbatim and were used as a data source for the study. During data collection in this study, voluntary participation was ensured, the names of the participants were kept confidential, and the ethical principles of scientific research were adhered to throughout the entire process.

Data Analysis

The drawings of the prospective teachers and the explanations about their drawings were analysed using descriptive analysis. This approach aims to organize and interpret the data obtained from interviews and observations. The data are classified, summarized, and interpreted based on predetermined themes (Yıldırım & Şimşek, 2008).

To ensure the reliability of the research, two faculty members were involved in the process to verify consistency in coding. While calculating the coding consistency, necessary adjustments were made after examining the consistency of the coding between the coding performed by the two faculty members and that of the researcher. Miles and Huberman's (1994) 'Percentage of agreement formula = [Agreement / (Agreement + Disagreement)] x 100' was used to calculate consistency between the coders, and the level of agreement between the coders was determined to be 86%. Miles and Huberman (1994) considered an agreement level of 70% and above to be sufficient for a study to be reliable. Given that the agreement level achieved in the present study was 86%, it can be concluded that the research is reliable. Furthermore, a total of ten sub-themes were identified under two predetermined themes.

RESULTS

In this section, the data were analysed using descriptive analysis. The findings were presented by including direct quotations from the interviews. Sub-themes and codes were developed pertaining to the themes identified regarding the classroom environment designs of the prospective teachers. In accordance with the research questions, two themes were identified: "My Classroom" and "My Advantages". As a result of the analyses, six sub-themes were established under the theme of "My Classroom": technology-supported classroom, laboratory classroom, well-equipped classroom, interactive classroom, nature-based classroom, and flexible classroom (Figure 1). Additionally, four sub-themes were formed under the theme of "My Advantages": one-to-one teaching, active participation, activity-based learning, and attention-grabbing features (Figure 1).

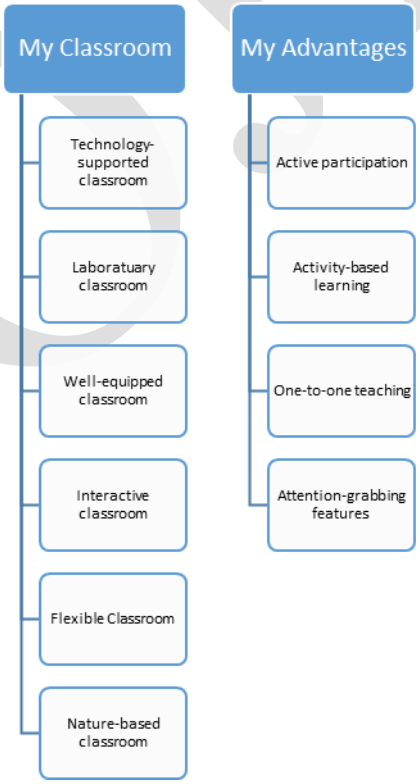

Figure 1. Main themes and Sub-themes

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My Classroom

The prospective teachers were asked to draw the ideal classroom environment they would like to teach in and provide explanations for their drawings. In line with the drawings and explanations of the prospective teachers, the sub-themes of technology-supported classroom, laboratory classroom, well-equipped classroom, interactive classroom, flexible classroom, and nature-based classroom were created under the theme of 'My Classroom'. The study conducted with prospective teachers from three specific departments revealed similarities in the classroom arrangements they desired. Only two students in the science education department designed their classrooms as laboratory settings, while two others created areas in their classrooms that could function as laboratories. Additionally, three students from the primary education department and two students from the science education department underscored the importance of their classrooms being integrated with nature and designed open spaces or classrooms with large windows.

Technology-Supported Class

All the prospective teachers included instructional technologies in their envisioned classrooms. Each teacher candidate emphasized the availability of smart boards and internet in their classrooms. Their views on this issue are as follows:

"...I would like my classroom to be technologically equipped. "I would like to have at least a smart board, and of course, Wi-Fi" (S1).

"...There should definitely be a large touch screen or a smart board, which is the most accessible option right now, in my classroom" (Sos2).

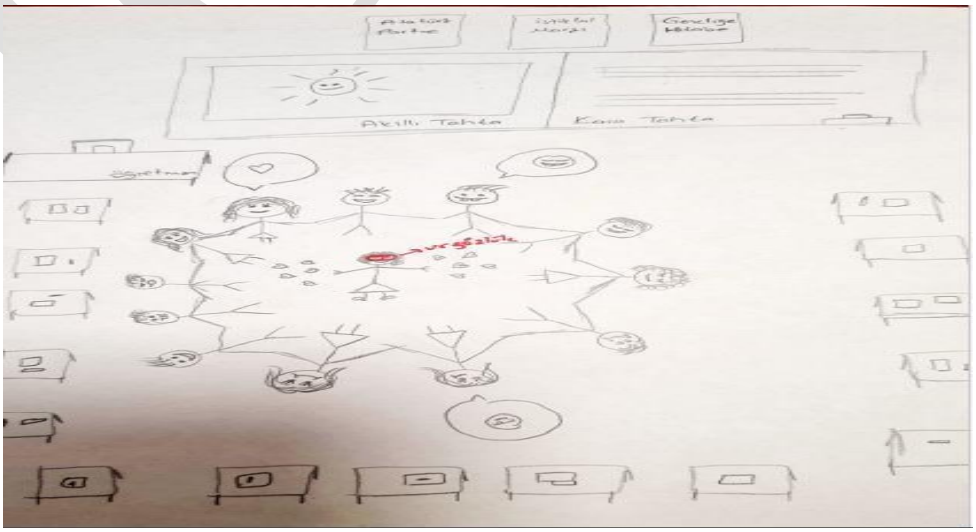
"...Technology should be used to add visuality and to ensure permanent learning, so I added a smart board to my drawing" (F4).

In addition to the smart board, two students from the science education department, one from the social studies department, and three from the primary education department highlighted the importance of having VR glasses in their classrooms. Their views are as follows:

"...It would be effective to use VR glasses, especially on subjects like planets, and plant and animal cells, I would like to have them in my classroom (F2)."

"Since students are still in the concrete operations stage, visuality is important. I think especially three-dimensional studies might be effective and VR glasses could be useful in this regard" (S5).

"For example, in the topic of landforms, VR glasses would be better than pictures. I would like to have them in my class, and they would also be attention-grabbing" (Sos 2)



Picture 1. S5's classroom design

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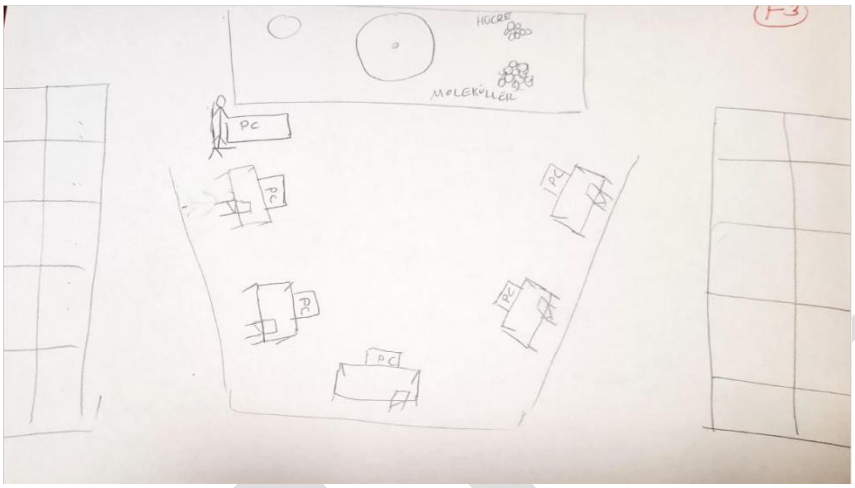
A participant from the science education department designed a classroom that is completely digital and explained how it should be:

"I would like my classroom to be a digital classroom. I often research technological classrooms myself. It would provide students with more current and concrete experiences, and it would appeal more to Generation Z. There would be a large screen, each student would have a computer, there would be interactive computers with the blackboard, and the teacher would be able to project the screen of any student, I would like a digital classroom that is connected to the internet when needed and even connected to schools in different countries..."(F3)



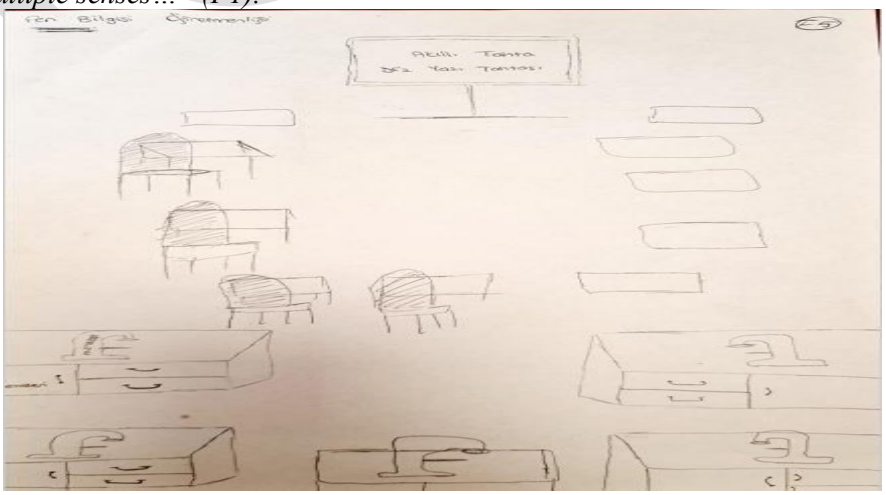
Picture 2. F3's design

Laboratory Class

The prospective teachers in the science education department have stated that their classrooms must be supported by laboratory facilities. Only F3 did not include a laboratory in her classroom design; she made fully digital designs. The prospective teachers emphasized that laboratory studies should be carried out in science classes due to the nature of the content and for learning to take place in the most concrete way. Their explanations and drawings regarding this aspect are given below.

"…there are experiment tables right behind the desks for students to conduct experiments, with two students at each table. In this way, a laboratory environment is created in the classroom…" (F5).

"Since I am studying in the science education department, I would like to teach my course in a laboratory setting, as required by my department… Because our subjects generally include topics that are challenging for children to comprehend, and the laboratory environment facilitates learning by appealing to multiple senses…" (F1).



Picture 3. F5's design

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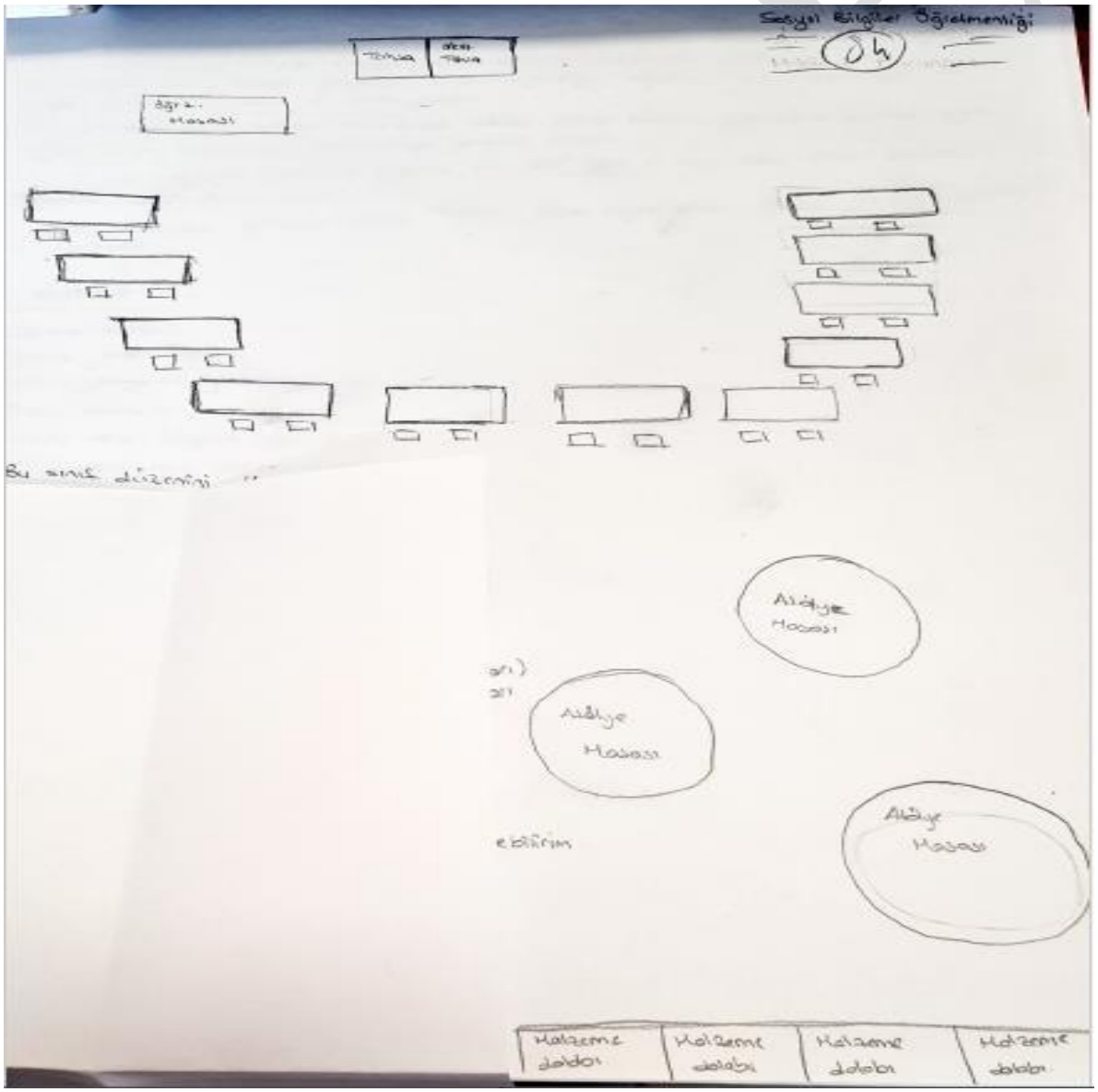
Well-Equipped Classroom

The prospective teachers emphasized the importance of having well-equipped classrooms in terms of instructional materials and included material cabinets or personal storage units in their designs where materials could be stored. They expressed that there was a requirement for maps, models, and a wide range of materials for activities and experiments to be readily available. The statements of Sos3 and S4 on this issue are as follows:

"I added workshop tables to the classroom because I think they are necessary for drawing projects and maps, and I included material cabinets to store our materials. Here at the university, we learned that permanent learning occurs through visualization, so I would like my classroom to be rich in materials (Sos 3)."

"I would like my classroom to be designed in a way that is the least time-consuming as possible. I would like all kinds of materials and models that I need during the day to be readily accessible. Therefore, I placed open material shelves on the wall and designed the back of the classroom as an exhibition area (S4)."

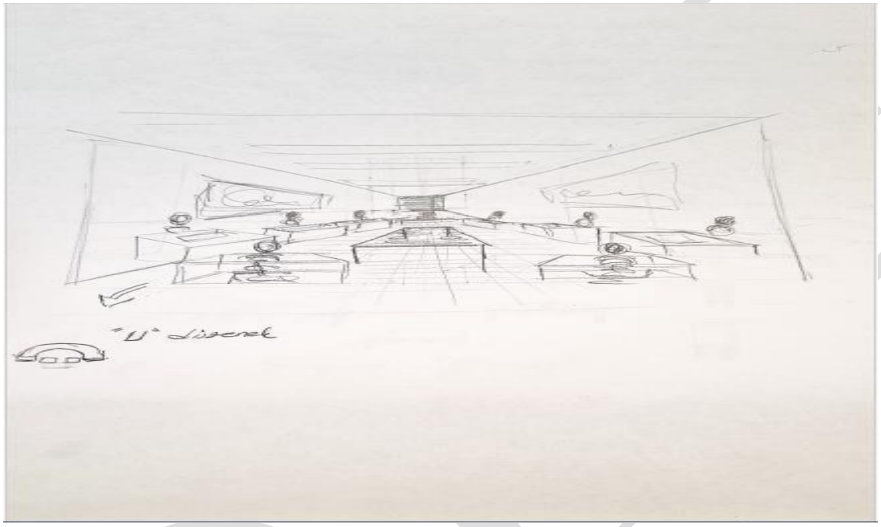


Picture 4. Sos3's design

Interactive Classroom

The prospective teachers excluded traditional desk arrangements from their classroom designs and explanations because they believed that students would be at eye level with their peers, the teacher would be able to maintain better control, and the interaction and communication within the classroom would be improved. They mostly used U-shaped and half-moon-shaped seating arrangements in their designs, as well as folding tables and chairs and round tables to foster group interaction. In addition, they limited the class size to a maximum of 15-20 students to cater for each student according to their abilities and to teach effectively. For example, S2 explained this situation as follows:

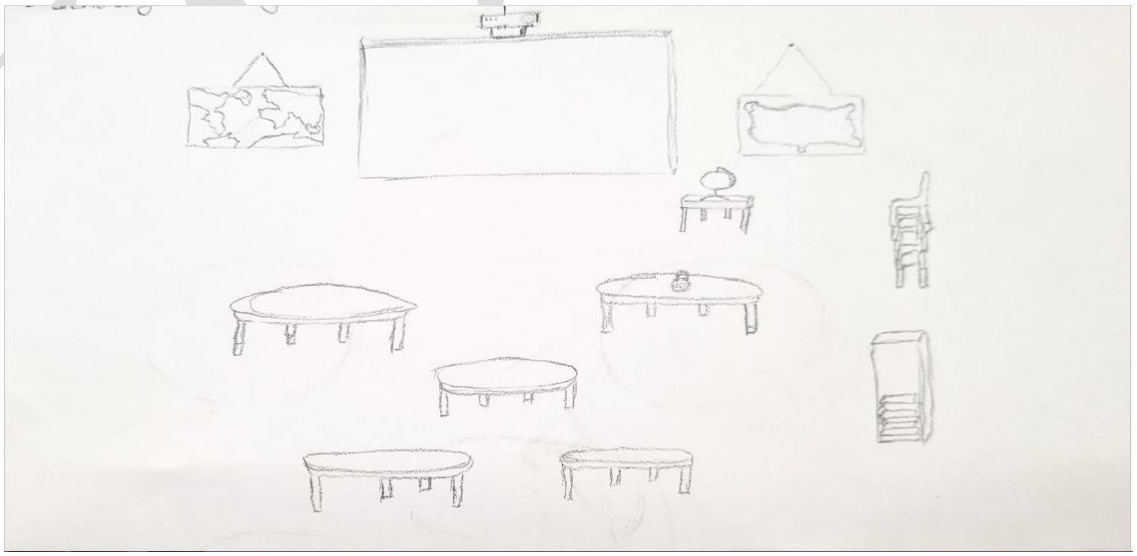
"Classes with U-shaped seating arrangements accommodate 15-20 students, and in this seating plan, where both theory and practice are easily taught, students are at eye level with their peers...class participation becomes more dynamic (S2)."



Picture 5. S2's design

A prospective social studies teacher preferred a round table in his classroom. He justified his choice as follows:

"Having a round table and not having a platform or a teacher's desk would remove the status difference and implicit message between the teacher and the students, making it more interactive...(Sos5)"



Picture 6. Sos5' design

A participant from the social studies education department designed the classroom setting in the shape of a moon and emphasized that students could express themselves more comfortably in this way and that the traditional seating was a hierarchical seating arrangement.

"...the reason why I designed my classroom in the shape of a moon is that the traditional seating follows a hierarchical seating arrangement. Students cannot express themselves, they tend to hide, there is less participation in the lesson, and those sitting in the back rows try to remain unnoticed. The moon shape arrangement, on the other hand, allows students to see each other and prevents their feelings of isolation, and facilitates mutual communication... "Sos(2)

Flexible Classroom

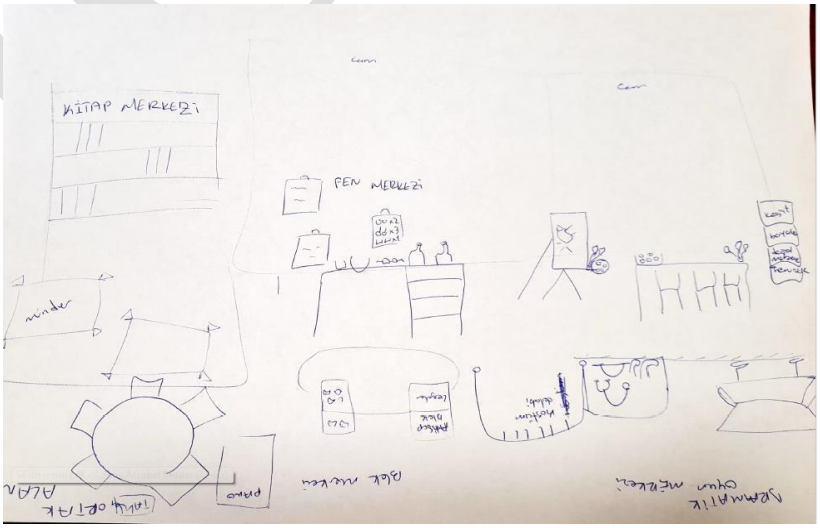
Participants underscored the importance of having a flexible environment in their classrooms. Especially the participants from the primary education and social studies education departments who highlighted that they wanted to provide both loud and quiet atmosphere when needed designed classrooms in which they could switch to a cushioned seating arrangement when necessary, or even play carpets were available in the middle. For example, one prospective primary education teacher wanted to use folding tables and chairs. She emphasized that she aimed to create a comfortable environment by removing the tables and placing cushions in the central area when necessary. Three of the participants from the primary education department designed more comfortable classrooms with larger spaces and included cushioned areas.

"...the reason why I used folding tables in my classroom is that I wanted the tables to take up less space in the classroom, leaving plenty of room for movement and the play area because teaching through play is important at this age and we need a more flexible environment" (S1).

"...sometimes it may be necessary to play loud games in the classroom, but we should avoid disturbing other classes, so I thought at least certain part of the classroom could be soundproofed. We should also be able to sit on the cushions and chat about books when we want. I would like to have an adaptable, flexible classroom" (S4).

"Social studies can be boring for students. In order to create a warmer, friendlier environment, a corner of the classroom can be designed with a comfortable seating arrangement with cushions. Historical documentaries and even debates could be better, and it could be even better if that corner is soundproofed" (Sos2)

"We should use visual elements and models a lot in science education; there should be different centres in the classroom where students can access these materials whenever they want, and there should be comfortable and flexible classrooms..." (F2).



Picture 7. S4's design

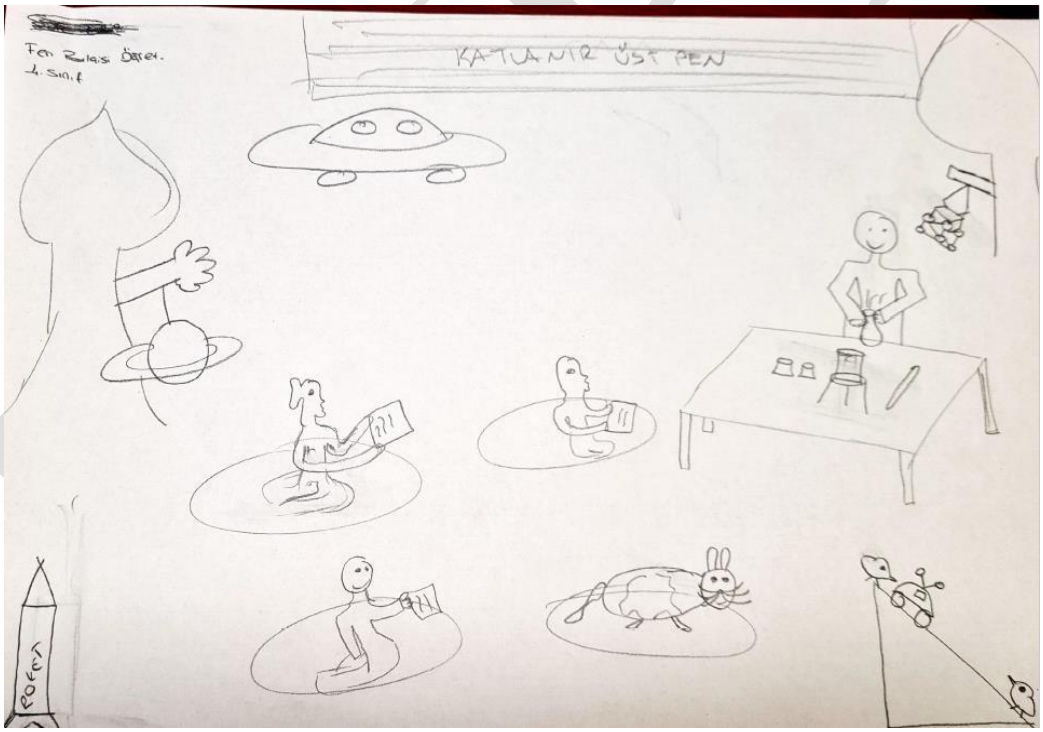
Nature-based classroom

Three of the prospective primary education teachers and two of the science education teachers emphasized that their classrooms should be intertwined with nature and designed open spaces or classrooms with large windows. They added that they designed nature-based classrooms because it was important for children to be in touch with nature for their cognitive, affective, and kinaesthetic development. While explaining their designs, they provided the following explanations:

"I prefer open air as a classroom environment. I wouldn't want to confine students to stereotypes and create a classical environment. This open space could be covered in winter so that students would connect with nature both in summer and winter. In addition, the classroom would not just include students, but also living creatures like animals, so a sense of unity would be ensured. Awareness of nature and the environment could be fostered more easily..." (F2).

"I would like my classroom to have large wall-to-wall windows extending from the ceiling to the floor. The classroom should overlook a green area. Children could have the chance to observe the outside, nature. It would be wonderful to explain the formation of water and talk about the colours of a rainbow while watching the rain..." (S1).

"It is difficult to draw children's attention to the lesson and the subject constantly, but I think it would be easier to guide them in nature. Wouldn't it be interesting if we could open the roof and let them watch the sky when they felt bored? Then it would be easier to reengage them in the lesson. Drawing attention using nature rather than artificial materials..." (S4)



Picture 8. F2's design

My Advantages

The prospective teachers were asked to justify and explain their classroom designs. In line with their explanations, four (4) sub-themes were identified under the theme of "My Advantages": one-to-one education, active participation, activity-based learning, and attention-grabbing features. Participants from the science education, primary education, and social studies education departments emphasized that they wished to establish their classrooms as areas in which students could move freely and engage in diverse activities. Furthermore, they expressed a desire to implement one-to-one education model, characterised by reduced class sizes and the creation of an engaging and participatory learning environment.

One-to-one Education

All the participants aimed to provide individualized attention to their students, communicate well with the entire class, and allocate more time for each student. They explained that the physical condition for achieving these goals was to have few students in large classes. They regarded large classes with small class sizes as an advantage for one-to-one education. For example, the statements of Sos1, F4, S5 are given below:

"I would like to have a maximum of 15 students in my class, but I want it to be a large class in size. In this way, I can take care of every student; I don't want to have a student that I haven't connected or communicated with when my lesson is over..." (S1)

"I designed a large classroom with few students so that I could interact more with a higher number of students and allocate more time to them. I think having a large class with a small student population is the biggest advantage for a teacher (F4)."

"First of all, it would be a large class, but student population would be small; for instance, having 15 students is ideal. Because the teacher can pay closer attention to each student. The teacher could provide better individual feedback, in other words, we could support their individual development more effectively. (Sos 1)

Active Participation

The prospective teachers aimed to foster one-to-one education by designing large classrooms with a small number of students, and at the same time designed an environment where students could actively participate. According to the teacher candidates, large spaces and alternative seating arrangements rather than the traditional desk setups mean environments where students can move more freely in the classroom, express themselves more comfortably, and participate in the lesson more actively. The statements of the participants are provided below:

"I designed my classroom with cushions because in such an environment, students could be comfortable, enjoy themselves, and get more motivated. Additionally, since they are comfortable, their interest in and participation in the lesson increase, which is an advantage for the teacher." (F2)

"I think students will be more eager to learn if the classroom arrangement fulfils their need for love and belonging. For this reason, I think my flexible classroom environment will encourage students to take an active part in the lesson. After all, it is students who will be active in the process, not me." (Sos 4)

"I aimed for space comfort in my classroom. They will be playful children, so they will be more eager to participate in the lesson in a spacious environment that facilitates access to materials. And our goal for students is to ensure that they take an active role in the lesson, isn't it?" (S3)

Activity-Based Learning

While designing their classrooms, the prospective teachers underscored the importance of using open shelves to store materials and even personalized cabinets other than the classroom cabinets. They stated that they made such a design to be able to implement activities tailored to each learning outcome in their classrooms and to ensure that students could easily access the materials they need. The prospective teachers added that they should conduct activity-based lessons to engage students actively in the classroom and achieve meaningful learning. They also aimed to design classrooms with ample materials and even technological products.

"I wanted to have shelves in my classroom that children could reach, so that students could easily take and return their materials. Since I will be a classroom teacher, I'll always need to visualize lessons, so I'll implement plenty of activities. I think it's essential to have areas with open shelves where materials and products can be displayed for each unit, which I believe will be greatest advantage..." (S4)

"Social studies classes are already boring for most students. The more activities I conduct and the more diverse visuals I use and even design web-based games and activities, the more eager students will be. Therefore, my classroom should be large enough to conduct these activities, and there should be shelves

to store materials and at least a smart board...” (Ss 2).

“I designed a digital classroom. The program is based on a constructivist approach so that students can carry out research and engage in web-based activities and even experiments regularly. Constructivism includes learning through hands-on experiences as well, and there should be digital activities for digital children, my biggest advantage is the ability to implement activities” (F3)

Attention-Grabbing Features

The prospective teachers stated that incorporating various visuals and even using vivid colours in their classrooms could positively affect the learning process. For this reason, they expressed a desire to have elements in the classroom such as paintings, sculptures, and illuminated panels on the walls in accordance with the theme of the lesson and emphasized that they could provide an advantage to capture students' attention. For example, the perspectives of Sos5, F1, and S5 regarding this issue are as follows:

“If I were to design a separate classroom for the social studies class, I would definitely like to have attention-grabbing elements suitable for the lesson. That's why I drew a huge globe in the centre of the classroom and designed a small interior landscape around it. The greatest advantage of my design is that it will capture attention. A map with an illuminated panel on the wall...I think students would be more interested and would eagerly come to class.” (Sos 5).

“Today's classrooms are boring, monotonous...I’d like my students to say wow and become intrigued when they enter the classroom. It would both serve as a laboratory and a comfortable classroom. For example, if there are visuals on the walls related to the subjects, this will attract their attention...” (F1)
“There should be a warm environment to familiarize and endear young children to school and the classroom. There should be vivid, striking colours... there should be boards that I could organize according to each theme. For instance, there could be cartoons on the boards that are interesting and related to topics. The students would enjoy reading and learning them, and these attention-grabbing elements would be my advantage...” (S5)

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Most of the contemporary educational programs are based on constructivist philosophy, with traditional approaches gradually being abandoned. Contemporary approaches highlight the individuality of the student and underscore the impact of learning environments. More flexible classroom environments that support cooperative learning and consider students' individual differences can be described as environments that are compatible with the philosophy of the program. The present study aimed to provide data on potential learning environments by asking teacher candidates to design classroom environments where they could apply the theoretical knowledge they acquired at the faculty and to explain their drawings. This study was limited to the perspectives of 15 prospective teachers who were designated as the participants in March 2024. In the study, two main themes (My Classroom, My Advantages) and ten sub-themes were identified regarding the classroom environments these prospective teachers envisioned.

According to the findings of the study, the prospective teachers, irrespective of the branches they belonged to, wanted to create attention-grabbing, active, spacious, and comfortable environments in their classrooms by considering student characteristics. In this framework, when the participants' perspectives on the ideal classroom environment were analysed, six sub-themes called technology-supported classroom, laboratory classroom, well-equipped classroom, interactive classroom, flexible classroom, and nature-based classroom were identified under the theme of my classroom. The rationale for including each of the classroom features was discussed under the theme of my advantages.

All the prospective teachers included a technological tool in their classroom designs, and even one participant from the science education department designed a completely digital classroom. Today, as technology has become an integral part of our daily lives; students in schools and classrooms aspire to engage with the technological tools they are accustomed to. The constructivist approach, which forms the core of educational programs, also supports technological transformation. Laney (1990) maintains

that combining technology with the constructivist approach is effective in enhancing students' higher-order thinking skills. At this point, the prospective teachers emphasized the importance of having technological tools like smart boards and internet access in their classrooms. These digital tools have become active components in classrooms in order to facilitate access to information and provide diverse learning experiences. Şensoy and Sağsöz (2015) point out that these technological opportunities extend the boundaries of the learning environment beyond the school, facilitate access to information, and transform the environmental understanding of teaching. In fact, as advocated by one of the prospective teachers in the study, transition to digital classrooms should take place. According to the literature, a digital classroom is defined as a space equipped with computers and communication technologies (ICT). In the classroom, students have access to computers, internet, electronic dictionary, and other technological tools (Liang, Liu, Wang, Chang, Deng, Yang, Chou, Ko, Yang, & Chan, 2005). There are studies in the literature suggesting that digital classroom increases learning motivation and achievement (Brown, 2011; Gulek & Demirtas, 2005; Güven & Sülün, 2012; Judge, 2005; Sinclair, 2009; Su & Klein, 2010; Weathersbee, 2008).

The prospective teachers emphasized that having a technology-supported classroom would provide numerous advantages. These are the advantages related to active participation, one-to- one education, and well-equipped classrooms, under the theme of my advantages. They expressed that integrating technology into their classrooms would allow students to progress at their own pace, provide them with one-to-one education, and ensure more effective participation, ultimately making it a well-equipped classroom. A study conducted by Çağıltay et al. (2007) suggests that technologies that provide easy access to necessary resources and tools foster active participation in the lesson. Likewise, Sarıtaş and Yılmaz (2009) conclude in their study that especially learning environments equipped with computer technologies promote active and effective participation in the classroom.

Four (4) participants from the science department expressed a desire to equip their classrooms with laboratory equipment. The participants have emphasized that the content of science classes is experiment-based, and that students learn best through first-hand experiencing and concretizing events and phenomena. Thus, they have expressed a desire for their classrooms to be especially suited to a laboratory environment. Given that most of the science subjects are based on experimentation and observation, the prospective teachers have regarded laboratory environments essential in their classrooms. In the literature, there are studies indicating that laboratories play a crucial role in helping students learn science lessons more effectively (Ayas, 2006; Cheung, 2007; Domiz, 2007; Freedman, 1997; Kırpık & Engin, 2009; Meb, 1995; Kocakülah & Savaş, 2011). For example, Ayas (2006) maintains that students can engage in activities based on hands-on learning through concrete experiences in a laboratory setting. Oğuzkan (1981) defines the laboratory as a space where students can have direct experiences related to science, underscoring its value in science courses. In addition, in their study, Kırpık and Engin (2009) describe the world as a laboratory and the science course as the area for applying scientific experiments and highlight the critical role of the laboratory in teaching science to students effectively and efficiently.

Emphasizing that their classrooms should be well-equipped with materials, all the prospective teachers incorporated material cabinets or personal cabinets in their designs, where materials could be stored and protected. They reported that they wanted their classrooms to be equipped with complete sets of maps, models, and materials for activities and experiments. Under the theme of my advantages, the pre-service teachers highlighted that a well-equipped classroom would make lessons more engaging and enable teachers to conduct activity-based lessons. As another advantage of having a well-equipped classroom, they stated that students could be active learners rather than passive recipients in activity-based lessons. The prospective teachers regard well-equipped classrooms as a prerequisite for student-centred education. It is imperative for students to participate actively in lessons to facilitate meaningful learning. In this sense, the prospective teachers advocated for their classrooms to be well-equipped with course materials. As a matter of fact, the perspectives of the participants in this study are also supported by the existing literature. In his study, Ergür (2010) attaches importance to learning environments enriched in terms of content and materials for students to be active learners. In addition, in well-equipped

classrooms, lessons can become more interesting for students, which can create willingness to learn. Studies indicating that enriched classroom designs can increase student engagement and motivation confirm these desires of the prospective teachers (Herreid & Schiller, 2013; Kaya &Kılıç-Çakmak, 2015; Olssen, 1996; Reece & Walker, 1998). There are different research findings reporting that equipping classrooms with materials and educational content allows students to develop positive attitudes towards the course and stimulates student interest (Ayaz, 2016; Betoret & Artiga, 2004; Chism & Bickford, 2002; Özer & Tunca, 2014; Yeşiltaş, 2016). Consequently, it is a very important result for the participants to design well-equipped classrooms in order to capture students' attention and promote active participation in the lesson.

In their classroom designs, the prospective teachers incorporated U-shaped and half-moon- shaped seating arrangements, which they thought would improve interaction and communication in the classroom as well as opting for circular desk arrangements to enhance group interaction instead of traditional seating setups. In addition, they limited the class size to a maximum of 15-20 students to provide individualized attention to each student considering their abilities and achieve effective teaching. The prospective teachers designed spacious classrooms in which they could comfortably carry out activities with their students. They thought that the size and width of the classroom would allow them to conduct a variety of activities. As a matter of fact, there are many studies indicating that class size positively contributes to the achievement of learning outcomes and the establishment of an enjoyable and engaging classroom environment (Bucholz & Sheffer, 2009; Cookson, 2006; Gömleksiz & Bulut, 2008; Hill & Epps, 2010; Karaçalı, 2006). Student-centred learning environments not only increase student achievement but also enable students to have positive attitudes and enhanced learning experiences (Gömleksiz & Bulut, 2006; Çetin & Günay, 2006; Ulu, 2012; Yalın & Sezgin, 2006). The prospective teachers also emphasized that having spacious classrooms would have advantages such as promoting active participation, enhancing communication, and facilitating activity-based teaching.

The traditional desk arrangement available in schools makes it difficult for students to focus, brings about a noisy classroom environment, and reduces student-student and student-teacher interaction (Hannah, 2013). In this study, the prospective teachers must have had this awareness because they did not use traditional desk arrangements in their classroom designs. The majority of respondents expressed a preference for seating arrangements comprising U- shaped, V-shaped, and circular seating. Indeed, it can be posited that contemporary trends are increasingly gravitating towards seating arrangements that not only foster enhanced student interaction but also facilitate collaborative endeavours. It is a fact that the classroom seating arrangement enables to establish comfortable communication with students and gives students the opportunity to move freely, thereby increasing the functionality of the classroom. An effective seating arrangement should allow for in-class interaction and easy access to teaching materials. Students should make sure that they are visible to the teacher in the classroom and should be able to see instructional materials clearly. Therefore, seating arrangements are essential for the rational use of the classroom environment and the establishment of classroom interaction (Emer, Evertson & Worsham, 2003). According to the findings of the present study, it can be claimed that the prospective teachers were also aware of the importance of seating arrangements.

The prospective teachers designed flexible classroom environments in which they could separate the loud and quiet areas when necessary and even remove the tables and chairs from time to time and switch to a cushioned seating arrangement, which they believed would enhance interaction and foster active participation. The organization of a classroom determines whether students will have a passive or active role in that classroom (Saban, 2002, p.177). As posited by the prospective teachers in this study, the flexible organisation of a classroom, that is classrooms that can be adapted to different activities rather than keeping the traditional fixed desk arrangement, supports students' active engagement. Existing literature consists of studies conducted on the necessity of creating different, flexible desk arrangements in classrooms (Bucholz & Sheffer, 2009; Cookson, 2006; Bal, Keleş, & Erbil, 2002; Özden, 2002; Şahin, 2019). In addition, constructivist learning can be achieved through flexible classrooms. As stated by Yaşar (1998), constructivist learning environments should include open and comfortable arrangements that require students to take more responsibility and participate actively in the learning

process.

Some participants from the primary education and science education departments emphasized their desire to create flexible, interactive, and nature-integrated classrooms. For this reason, they designed open classroom areas or classrooms with large windows opening to gardens and nature. The prospective teachers reported that these designs aimed to provide their students with opportunities to observe the immediate surroundings and to foster their sense of curiosity and discovery. Additionally, they explained that their designs would offer advantages such as capturing students' attention, fostering active participation, and facilitating permanent learning. Pramling and Samuelson (2011) noted that children were always interested in exploring plants, animals, and all living and non-living things in nature. Many years ago, Comenius advocated that it was necessary for a child to establish a connection with a plant, a stone or an animal while learning a subject (Kanad, as cited in Temiz & Semiz, 2019). In this study, the prospective teachers indicated that learning in nature-integrated environments could facilitate sustaining children's interest. The literature supports this with studies showing that nature-integrated classroom environments support children's development and facilitate long- lasting learning. For instance, Smith and Sobel (2010) argue that the characteristics of the area where students live should be made use of for educational purposes as individuals who are familiar with their immediate environment can come up with sustainable solutions to the problems they encounter, starting from their own surroundings. Similarly, in their studies Beames, Higgins, and Nicol (2012) recommend that teachers make use of natural environments in their immediate surroundings for educational purposes.

School and classroom environments in which education and teaching take place mean much more than bricks and mortar; they symbolize society's responsibility toward education and reflect the culture, values, and worldviews of that society (Şensoy & Sağsöz, 2015). The prospective teachers involved in this study were also aware of this responsibility and believed that the physical environment of their classrooms should be different from the traditional classroom arrangements. They were aware of the importance of providing individualized attention to students and designed spacious, flexible, and technologically equipped classrooms where they could implement engaging activities to sustain their students' interest.

Recommendations

Considering the results of the study, the following recommendations can be proposed for the desired classroom environments from the perspectives of the prospective teachers: Traditional classroom arrangements should be abandoned, and classrooms that make use of educational technologies should be designed. Flexible classroom environments, where teacher-student and student-student interactions can be established more easily, should replace fixed desk arrangements. The notion that classrooms are made up of four walls should be abandoned, and classrooms should be transformed into places where students can learn through hands-on experiences.

As aligned with the constructivist approach, student-centred classroom environment designs may be more compatible with the philosophy of the educational programs. Various areas can be created in the classroom to suit the learning styles of students, such as individual and group study areas, quiet reading corners, and separate areas for creative activities.

In a constructivist classroom environment, modular furniture, including tables and chairs that can be easily moved, could utilized to allow students to work collaboratively. Visual materials, posters, and graphics that align with the learning outcomes can be placed on the classroom walls, providing students with valuable cues.

Interactive boards and tablets can enable students to learn on their own in line with the demands of the digital age. Classroom areas can be created where students easily access online resources.

This research is a qualitative study based on the perspectives of a certain number of prospective teachers from three particular departments. In future research, quantitative studies involving prospective teachers from a wider range of departments can be conducted to further explore the desired classroom arrangements. In addition, experimental or action research studies could be conducted to evaluate

student satisfaction or academic achievement resulting from different classroom designs. Moreover, teachers' perspectives could provide valuable insights into desired classroom environment designs.

Ethics and Conflict of Interest

This research has an ethics committee permit issued by the Pamukkale University Ethics Committee on 11.03.2024 with the decision numbered E-93803232-622.02-506666. The author declares that they have no conflict of interest.

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STORYTELLING WITH FINGER PUPPETS IN PRIMARY EDUCATION: IDENTIFYING STORY ELEMENTS AND LISTENING STRATEGIES

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Abstract

It is possible for students to listen to the texts selected in a way that can attract their interest in accordance with their level and to share the main points in the text with their friends and teachers through narration. It is important to determine which elements primary school students utilize in the process of understanding the stories they listen to and which strategies they use in the listening process. In this study, it was aimed to determine which listening strategies third grade primary school students used to understand the stories they listened to from their classmates in the oral storytelling process and which story elements they identified in the listening process. In this direction, using finger puppets, the students were asked to be paired with their classmates and to tell the stories they read to each other in turn. Then, in the listening process to understand the story; "what are the listening strategies they use?" and "what are the story elements they can detect?" questions were sought to be answered. The research was conducted as a cross-sectional survey design. The study group of the research consisted of 100 students studying in the 3rd grade of primary school. A form consisting of closed and open-ended questions was used as a data collection tool. Two narrative texts were used in the data collection process. Descriptive analysis was used to analyze the research data. According to the results of the research, it was determined that the majority of the students had deficiencies in using listening strategies. While they could more easily identify the character, place, and time elements in the story they listened to, it was observed that they could not pay attention to the initiating event, plot, and sequence of events. It was also determined that some students were confused about the story elements. This situation suggests that students' active listening skills should be improved and suggestions for future studies are presented in this context.

Keywords: Finger puppets, oral telling, listening strategies, story elements.

INTRODUCTION

Language is a skill that has certain rules and shows continuous development with the learning of letters and numbers. Beginning from birth, people use language skills for human relations as well as for their academic and professional development. Language skills consist of two dimensions: comprehension and expression. Comprehension is defined as "the work of examining the information received through listening and reading in the light of preliminary information, thinking about it, investigating its causes, drawing conclusions and making sense again" (Güneş, 2013, p.209). Expression is the expression of feelings, thoughts, ideas, or information by individuals in spoken or written form. According to Morrow (1989), retelling is the verbal or written recall of what readers or listeners remember after reading or listening. It is also a useful activity for teachers to help students summarize the information they have read or listened to and show that they have understood it because it requires students to be active in the listening or reading process and to memorize the information in the text they have listened to. It helps students recognize text structures (Ekaningrum, 2017) and supports critical thinking and communication skills. Therefore, in order for students to be able to narrate, teachers need to select memorable texts that appeal to them or contain rhyming and instructive messages (Morrow, 1989). Aktaş (2018) stated that stories are more familiar and easily understood among text types. For this reason, stories are among the more preferable text types for students in expression activities.

Narrative texts that tell what happened to one or more people at a specific time and place are defined as stories (Kaya, 2006). Stories are effective texts that provide the listener with opportunities for understanding, remembering, telling and problem solving (Akyol, 2014). They consist of certain elements such as character, setting and theme (Ekaningrum, 2017). It can be understood through story elements whether students understand the important information in the text. Story elements can be used as a guide to share the main points by retelling the story and can also be used for children to better understand what they listen to (Morrow, 1985). According to Pellegrini and Galda (1982), children can learn all story elements by the age of eight or nine. While Tompkins (2008) emphasizes the following elements in story elements: chain of events, setting, characters, theme, author's point of view; Akyol (2008, p.157-159) mentions the following elements for story elements:

1. Time and Space: It includes the characteristics of the physical environment such as the season, period, and place where the event takes place.

2. Primary and secondary characters: These are the people who take part in solving the problem in the story by being at the center of the events. They can be humans, animals, or imaginary characters with extraordinary powers. They enable the reader or listener to connect with the story and can support empathy.

3. Initial event: The event or events that start the problem.

4. Problem: The main problem in the story. It is the unknown that needs to be solved.

5. Initiative: These are the activities that the main character resorts to in order to solve the problem by ensuring the progress of the story.

6. Conclusion: It gives information about whether the solution attempts have achieved the goal or not.

7. Main idea: The central theme of the story conveys a meaningful lesson to the reader or listener.

8. Reaction: Affective and cognitive behaviors exhibited by the main character or the reader about the event.

Various studies conducted to improve students' story writing skills (Kirby et al., 2021; Özkan & Karasakallıoğlu, 2018; Polat, 2023), evaluate their comprehension and retelling skills (Çelebi & Ateş, 2021; Lynch et al., 2008), and support their vocabulary (Çetinkaya et al., 2018) show the importance of story elements. Pickert and Chase (1978) "suggested narration as an approach to assess language skills, emphasizing that in this approach, students' comprehension and expression skills can be evaluated under the control of their teachers with stories selected to suit the student's interest and ability" (p. 529). At this point, retelling comes to the fore in skills such as remembering and memorizing story elements. To be able to make a good narration, students need to be effective listeners and comprehend what they listen to. In this process, listening strategies have an important place (Süğümlü & Yüce, 2020). Because listening strategies are used to improve comprehension skills by contributing to the listener's planning, monitoring, and evaluation of their own listening process (Kurudayıoğlu & Kiraz, 2020). Students' effective use of listening strategies in the listening process helps them to rephrase the information they receive (Vandergrift, 2008). There are many classifications about listening strategies in the literature (e.g., Doğan, 2018; Katrancı, 2012; Melanlıoğlu, 2011; Tompkins, 2009; Vandergrift, 2008). According to Tompkins (2014), the listening strategies that students use to control their comprehension skills and become more effective listeners differ according to listening types. Listening strategies can be categorized under three headings as pre-listening, during listening and post-listening (Melanlıoğlu, 2011, 2012; Katrancı, 2012) based on the fact that listening skill is realized in a process and that listeners' mental activities continue before, during or after listening (Yıldız, 2015). Within this classification, Table 1 illustrates strategies created by various researchers (Aktay, 2018; Rixon, 1986; Temur, 2010; Tompkins, 2018; Yıldız, 2015).

Table 1. Listening strategies.

Listening Strategies	Learning Stages
Pre-listening strategies	Preparation Using prior knowledge Generating pre-listening questions Forecasting Goal setting
Strategies to use during listening	Taking notes Question and answer Checking forecasts Listening again Relating to life
Strategies to be used after listening	Summarization Retelling Making inferences

Listening skills are necessary in language development and communication, and listening is at the forefront in classroom activities. Studies on listening strategies show that students should use listening strategies at primary school level (e.g., Colognesi, 2023: Karatay & Uzun, 2019; Maeng, 2007; Robillos & Bustos, 2022; Yıldız & Kılınç, 2015). At the same time, listening supports students' reading comprehension skills. It helps them develop cognitive skills such as critical thinking, prediction, and rephrasing. They need to use listening strategies for academic and social development, and in this study, the strategies given in Table 1 were utilized in accordance with the level of primary school students.

Students need to understand what they listen to and rephrase it in their own words. In particular, to be effective listeners, students need to take control of listening by using all the information in and out of the text to reach the meaning of a text (Vandergrift, 2008). “In this way, they can reconstruct the meaning of stories in their own words” (Morrow, 1989, p.51) and can retell. Hagtvet (2003) stated that teachers can assess students' story comprehension skills by having them retell oral narratives, conveying important events and details in a coherent and sequential manner, and making logical connections between events. In the narration process, students' prior knowledge, text type and the strategies they use to verbally reconstruct the information obtained from the text are important (Gambrell et al., 1991). At this point, listening strategies come to the fore. When the studies on listening strategies are examined, it is seen that they are generally related to upper grade levels and second language / foreign language learners (e.g., Berne, 2004; O'Malley et al., 1989; Kurudayıoğlu et al., 2021; Liu, 2008; Soruç et al., 2018; Wipf, 1984; Vandergrift, 2006, 2007; Vandergrift, & Baker, 2015). For this reason, it is thought that emphasizing the use of listening strategies at the primary school level in native language in this study will contribute to the field. However, listening skills are critical for primary school students for different reasons such as acquiring and processing new information, understanding the teacher's instructions, participating in class or small group discussions, and developing other language skills (Acat et al., 2016; Bourdeaud'Hui et al., 2021; Marx et al., 2017; Wolfgramm et al., 2016). In this period, story understanding and storytelling with the help of finger puppets can be useful (Morrow, 1989). In the process of understanding and interpreting a story, students need to sort, summarize, and interpret. These are also necessary for narrative skills. The organization of a series of events or actions in a certain order in stories through narration by students allows the story to be understood effectively from beginning to end. This requires the story elements to be known or remembered by the students. However, when the studies on storytelling and finger puppets in Turkey are examined, it is seen that preschool children are generally researched (e.g., Buzlugöl et al., 2019; Varol et al., 2020; Yekeler & Cengiz, 2018). However, listening strategies, together with story elements, are important factors that are worth examining at different grade levels, especially for the comprehension skills of primary school students. The main problem of the research is to figure out which elements primary school students benefit from in the process of understanding

the stories they listen to and which strategies they use in the listening process. Therefore, in this study, it was aimed to determine which listening strategies third grade primary school students utilized to understand the stories they listened to in the oral expression process and which story elements they identified in the listening process. In this direction, finger puppets were used and the students were asked to be pairs of classmates and to tell the stories they read to each other in turn. Then, what are the listening strategies used by third grade primary school students in the listening process to understand the story they listened to from their classmates?

1. What are the listening strategies they use?

2. What are the story elements they can identify?

METHOD

The study was conducted in a cross-sectional survey design. A survey design is a design in which researchers collect information to explain the characteristics of a population or sample group (Creswell, 2020). Cross-sectional survey design, on the other hand, is a type of survey in which the data collection process is carried out at one time (Fraenkel & Wallen, 2013), and its aim is to determine the status of the phenomenon at any given moment (Metin, 2014). In this way, it can be ensured to determine the views of the participants on a subject or event and their characteristics such as interests, skills, abilities, and attitudes (Büyüköztürk et al., 2012). This design was preferred in order to determine which listening strategies primary school students use to understand the stories they listen to and which story elements they identify during the listening process. Accordingly, the steps followed while conducting the survey design are as follows:

1. Selecting the research design: The survey research is suitable for determining the characteristics of the study group (primary school students) because it is implemented in a short time and the data collection process is fast and economical.

2. Identifying the research questions: What are the listening strategies that primary school students use in the listening process to understand the story they listen to from their classmates and what are the story elements they can identify?

3. Determining the research sample group: The researcher aimed to provide diversity in the data obtained by choosing different primary schools where students from many different socio-economic levels study.

4. Deciding on the research design and data collection process: In order to be able to examine the listening strategies and story elements used by the students immediately and quickly, a cross-sectional process was required face-to-face with the students.

5. Developing a data collection tool: A form data collection tool consisting of open and closed questions developed by the researcher was used to measure or determine the variables of the study.

6. Data analysis: Based on the research questions, descriptive statistics (number and percentage) were utilized. In addition, the responses to the research questions were presented in the form of direct quotations.

Working Group

The study group consisted of 100 students (55 girls, 45 boys, 8-10 years old) in the third grade of primary school. The students were selected from four different public schools in the central district of Giresun in the spring semester of the 2023-2024 academic year. The reason why third grade students were selected for the study is that students should have sufficient skills to outline what they have read, answer questions about what they have listened to, and determine the main idea and subject of what they have listened to (Turkish Lesson 3rd Grade curriculum, for learning outcomes see MoNE, 2024). In addition, in line with their writing skills, they are expected to fill in the forms in accordance with the instructions to determine the story elements they can identify in the stories they listen to (MoNE,

2019). For this reason, it is thought that the third-grade level is appropriate for the study of listening strategies and story elements at the primary school level. In other words, primary school students at the appropriate grade level were included in the process. The study group aimed to provide diversity in the data obtained by choosing four different public schools where students from many different socio-economic levels study in the context of maximum diversity sampling method.

Data Collection Tools

As a data collection tool in the study, the form titled "I Listen to Stories from My Friend" developed by the researcher was used to identify the listening strategies used by the students before, during and after listening and the story elements in the stories they listened to from their classmates. The form includes sentences about listening strategies and story elements. The students were asked to mark the sentences as yes / no and to make a sample explanation under the sentence (See: Appendix).

In the first part of the form, it was aimed to determine which strategies the students used before, during and after listening to their classmates who gave oral storytelling (See: Appendix, Data Collection Tool Part I). Based on the idea that elementary school students can use different comprehension strategies while listening (Yıldız, 2015), it was sought to determine the preferences that could facilitate the construction of meaning for the story as yes / no. Students were asked to explain their choices in one sentence and write the strategy they used.

Before listening, the following sentences (key phrases) were used for students to set goals, mobilize prior knowledge and make predictions (Tompkins, 2009):

1. I thought about what I might know about the story I am going to listen to (activating prior knowledge).

2. I determined my purpose of listening to the story (purpose setting).

The following sentences (key phrases) were used to ascertain which listening strategy students used during listening (Tompkins, 2009):

4. I took notes to understand the story while listening.

5. I asked questions to understand the story while listening.

6. While listening to the story, I wanted to listen to it again to understand it.

After listening, the following sentence (key phrase) was used for students to construct information by establishing relationships between situations and events based on the information in the text and to determine whether they reached new information (Tompkins, 2009):

7. I paid attention to find the intended message in the story (inference).

Then, in the second part of the form, the students were asked to indicate the story elements used in their friends' narration as yes/no and to make a sentence explanation underneath (see Appendix, Data Collection Tool Part II). They were also asked to evaluate whether they could understand the story based on these elements. Koskinen et al., (1988) stated that "teachers can provide guidance to their students by using a response table while they are narrating" (p. 895). The statements in this table are as follows:

8. I listened to the story from my desk mate named .....

9. He talked about the characters in his story.

10. In the story, he mentioned the time and place where the story takes place.

11. He mentioned the events in the story.

12. His/her story had a starting point.

13. His/her story had a conclusion.

14. Tell the storyteller something positive/negative about his/her story.

15. I understood the story I heard from my friend.

In the data collection process, two stories written by Çetin (2020) were used by the researcher for children to narrate. The names of these stories are "Unexploded Corn and Milk Bottle" and "Alphabet." In the selection of the stories, the number of words that third grade students can read (200-400 words) was taken into consideration and the opinions of two experts in the field of children's literature were consulted. Among these stories, "Alphabet" has 328 words and "Unexploded Corn and Milk Bottle" has 355 words. The stories consist of a main character, at least two supporting characters, a setting, time, a problem, a starting event, a plot, and a resolution (Çetin, 2020). In order for the students to find the message intended to be given in the stories through inference, care was taken in the selection of the stories to include a message (See Appendix).

Data Collection Process

In the data collection process, the researcher first obtained the necessary permissions from the Provincial Directorate of National Education and identified four different public schools in the central district where students from different socioeconomic levels study. The data of the study were collected in two stages. In the first stage, third grade primary school students were asked to specify the listening strategies they used in the listening process to understand the story they listened to from their classmates. In the second stage, it was tried to determine which story elements they were able to identify in order to understand the story. For this:

1. Finger puppets were distributed to all students in the classes and they were asked to read two predetermined narrative texts (Unexploded Corn and Milk Bottle and Alphabet) and tell them to their classmates using finger puppets. This process was conducted with groups of two in the classrooms. The data of the storytelling process was recorded and the students were asked to make explanations to justify the yes option they chose in the form and their statements were trusted.

2. While one student was telling the story in finger puppets, the other student was asked to report which listening strategies he/she used and the elements he/she could identify to understand the story. In other words, a reciprocal process was managed as one student narrated and the other listened, then the other student narrated and the first student listened.

3. In this process, in order to determine which listening strategies the third-grade students used, they were asked to give an explanation about the strategy they used after answering the yes or no questions in the "I Listen to a Story from My Friend Form - Part I". As it was not enough for them to declare "yes" that they used a strategy that they did not use in the data collection tool.

4. During the data collection process, children were asked to tell the stories they read to their classmates. Since the incomplete narration, misrepresentation, etc. of the student who is the storyteller is determined by his/her desk mate, it is also important how well the student in the listening role is an effective listener or how well he/she understands.

Data Analysis

Descriptive analysis was used to summarize the data obtained in the study. Descriptive analysis is a deductive way of interpreting data (Güçlü, 2021). In the research, the data was interpreted according to the categories determined before the application. Thus, the data (distributions according to categories) was summarized. Since the main purpose is to convey the obtained data to the reader in an organized and interpreted manner (Yıldırım & Şimşek, 2013), direct quotations were included in order to reflect the expressions obtained from the analysis in a complete and accurate manner. In addition, the findings obtained from the descriptive analysis were reported in tables by calculating frequency and percentage values without relying on statistical inferences.

Validity and Reliability

For validity in the analysis of the research data, it was examined whether the results of the analysis were compatible with the results of other studies on the subject, and attention was paid to ensure that the categories used for analysis were clear and understandable based on theoretical foundations. To ensure reliability, the students' narratives were audio-recorded. The analysis and coding were checked by listening again and again. In addition, the student forms were recorded by the researcher at different times to ensure that the results obtained were consistent. Thus, consistency was checked and it was aimed to present the findings obtained with direct quotations in a clear and understandable way (Cresswell, 2007).

RESULTS

As a result of the analysis of the research data, the listening strategies used by primary school students and the rates of specifying the story elements that they were able to identify during the listening process were first shared in tables in the form of percentage and frequency analysis. Then, the answers given by the students are given as sample quotations according to the stories.

The listening strategies used by third-grade primary school students in the listening process to understand the story they listened to from their classmate and the percentages of their responses to the "I Listen to Stories from My Friend" form in Part I are presented in Table 2.

Table 2. Findings on listening strategies.

Listening Strategies	Yes (*f*/%)	No (*f*/%)
1. Pre-Listening Strategies		
1.1. Think about what you might know about the story you are going to listen to	12	88
1.2. Determining the purpose of listening to the story	25	75
2. Strategies During Listening		
2.1. Taking notes while listening to the story	-	100
2.2. Asking questions while listening to the story	1	99
2.3. Listening again while listening to the story	3	97
3. Strategies to be used after listening		
3.1. Finding the important message of the story	37	63

According to Table 2, more than half of the primary school students did not consider what they might know about the story they were going to listen to (88%), did not determine the purpose of listening to the story (75%), did not take any notes during listening, very few asked questions or took notes, and many could not find the message intended to be conveyed in the story (63%).

Students who thought about what they might know regarding the "Alphabet" story expressed their opinions as follows: *"I thought it could be about our alphabet"* (Student 1, girl- ö1f), *"The letters of the alphabet are behaving as if they are naughty"* (ö5f), *"I thought something happened at the beginning of our alphabet"* (ö11f), *"I thought about the beginning of the vowels in our alphabet"* (ö68k).

Students who considered what they might know about the "Unpopped Corn and Milk Bottle" story shared their thoughts as follows: *"The taste of unpopped corn"* (s4f), *"I thought it took place in a field"* (s7m), *"the story might be about the events involving unpopped corn and the milk bottle"* (s8f), *"I thought it might be related to popcorn in the cinema"* (s32f), *"I thought it took place in a kitchen"* (s40m), *"I thought a mother was cooking in the kitchen"* (s67f).

Students stated their purposes for listening to the story as follows: *"to be curious about the story"* (s1f, s98f), *"I love listening to stories"* (s3m), *"to have fun"* (s4f, s5f, s60m), *"to do an activity"* (s5f,

s6e, s8f, s9f, s11f, s12f, s13f, s32f, s45m, s56m, s63m, s68f, s74f), *"to gain knowledge"* (s7m, s36m, s40m), *"to listen quietly and nicely" = attentive listening* (s14f), "*to complete the questions completely" = discriminative* (s67f).

It was observed that the number of students who asked questions and wanted to have the story retold during listening was quite low. After listening, students who identified the intended message in the story related to the "Alphabet" expressed their inferences as follows: *"to help others"* (s1f, s33m), "*if there is no letter a, there is no alphabet"* (s10m), *"we should not go anywhere without informing anyone"* (s5f, s34m), *"not to be alone again"* (s36m), *"to help the disabled*" (s41f). In relation to the "Unpopped Corn and Milk Bottle" story, they stated: *"we should not waste"* (s3m, s7m, s14f, s18m, s19m, s27m, s42m, s50f, s62f, s80m), "*we need to pay attention to what we eat"* (s4k), *"we should be economical"* (s8f, s13k, s30m, s82f, s84m, s89f), *"conscious consumption*" (s29f), *"Ali learning a lesson from extravagance"* (s32k), *"we need to eat healthily*" (s69m), *"we should value our food"* (s67f).

The percentages of the responses given by third-grade primary school students regarding the story elements they were able to identify during the listening process to understand the stories they heard from their classmates are presented in Table 3, based on Part II of the "Listening to Stories from My Friend" form.

Table 3. Findings on story elements.

Story Elements	Yes (*f*/%)	No (*f*/%)
1. Characters	88	12
2. Place and Time of the Story	65	35
3. Events in the story (in order)	34	66
4. The Beginning of the Story	46	54
5. Conclusion of the Story	47	53
6. Understanding the Story	58	42

According to Table 3, the majority of the students stated that the narrator mentioned the characters (88%) and time and place (65%) in the story. In addition, more than half of the students (58%) stated that they understood the story they listened to from the narrator. However, according to the students' evaluations, the beginning of the story (46%), the conclusion of the story (47%) and the events in the story (34%) were the story elements that were mentioned less by the storyteller. According to 66% of the students, 58% of the students stated that they understood a story whose beginning or end or both were not told, although their friends who gave oral narration with finger puppets did not tell the events in the story in order, 54% did not understand the beginning of the story and 53% did not understand the end of the story. In this case, the high rate of those who answered that they understood the story even though they did not understand it correctly from beginning to end shows that there is no logical and consistent integrity among the students' answers.

Examples of the responses given for the characters from the story elements that the students were able to identify during the listening process in order to understand the story "Alphabet" told by their classmates; *"the letters a, f and r"* (s1f, s2m, s7m, s30m, s33m, s33m, s41f, s47m, s48m, s49f, s51m, s53m, s81f), *"the letters a, r, f, polar bear and donkey"* (s3m, s11f, s35k, s45m, s61m). Examples of the responses given for the characters from the story elements that the students were able to identify during the listening process in order to understand the story "Unpopped corn and milk bottle" that they told to from their classmates; "*Ali, his family, milk bottle, unpopped corn and Zıp Zıp"* (s4f, s6m, s8f, s9f, s10m, s12f, s13f, s14f, s16m, s25m, s28m, s29f, s44f, s46m, s50f, s52f, s62f, s64m, s67f, s78f, s79m, s98f).

Examples of the answers given for the place and time in which the story takes place among the story elements that the students were able to identify during the listening process in order to understand the story "Alphabet" that they listened to from their classmates are; *"alphabet city"* (s2m, s35m, s37m, s48m, s53m, s77f), *"alphabet city and morning"* (s5f, s17f, s18m, s47m), *"village of speech impaired"* (s11f, s61e, s64e). Examples of the answers given for the place and time in which the story takes place among the story elements that the students were able to identify during the listening process in order to understand the story *"Unexploded corn and milk bottle"* that they listened to from their classmates; Examples of the answers given for the characters in the story *"Unexploded corn and milk bottle"* are "*Ali's house"* (s12f, s52m, s58m, s58m, s63m, s70m), *"Ali's house and evening time"* (s9f, s32f, s43f, s44f, s69m, s80m).

The examples given for the order of events in the story to understand the story "Alphabet" that the students listened to from their classmates are generally *"The letter A disappears"* (s2m, s3m, s5f, s15k, s37m, s82m*), "The letter A disappears and other letters look for it*" (s1f, s35f, s68f). In order to understand the story "Unpopped corn and milk bottle" that the students listened to from their classmates, the examples given for the order of events in the story are generally *"Ali's not being thrifty & not eating healthy and what happened to him"* (s8f, s13f, s14f, s50f, s67f, s71f, s96m), *"Ali pouring the unpopped corn out of the window & putting the unfinished milk bottle outside"* (s12f, s14f, s71f).

In order to understand the "Alphabet" story that the students listened to from their classmates, their response to the beginning of the story was usually *"the letter A disappears"* (s1f, s5f, s7m, s17m, s18m, s32f, s30m, s34m, s36m, s38f, s45m, s48m, s60m, s65f, s68f, s72f, s74f, s75f, s77f). In order to understand the story "Unpopped corn and milk bottle" that the students listened to from their classmates, their responses about the beginning of the story were generally "*one evening, Ali and his family popped corn to watch TV"* (s4f, s6m, s8f, s10m, s12f, s13f, s14f, s16m, s39f, s52f, s67f, s70f, s77f).

Examples of the answers given by the students about the conclusion of the story in order to understand the story "Alphabet" that they listened to from their classmates; *"all things can be solved with benevolence"* (s1m), 'strength comes from unity' (s7m), *"we should not go somewhere without informing"* (s2m), while the answers of the majority were "finding the letter A" (s5f, s17m, s20m, 30m, s36m, s47m, s48m, s61m, s65f, s68f, s74f, s75f). Examples of the answers given by the students about the outcome of the story in order to understand the story "Unpopped corn and milk bottle" that they listened to from their classmates are as follows: *"The milk bottle and unpopped corn teach Ali a good lesson not to waste"* (s10m, s14f, s26m, s42m, s62f, s70f).

DISCUSSION, CONCLUSION, and SUGGESTIONS

The findings of the study conducted to determine which strategies primary school students use in the listening process and which elements they can identify in the process of understanding the stories they listen to are presented under two headings within the framework of the research questions.

Conclusion, Discussion and Suggestions for Listening Strategies

As a result of this study conducted to determine which listening strategies third grade primary school students use to understand the stories they listen to in the narration process, it is seen that students are inadequate in terms of listening strategies. Nevertheless, based on the findings of the study, while the purpose of listening to the story beforehand was primarily reported by the students as engaging in activities and obtaining information, repetition and asking questions emerged as the most frequently used strategies during the listening process. After listening, it was concluded that the students attempted to retell the intended message of the story briefly and concisely. This supports the need for teachers to teach students different listening strategies to remember story characters and objects or to make inferences about thoughts and feelings, which in turn helps to ensure that students remember as many events in the story as they can (Paris & Paris, 2016).

In order to awaken prior knowledge before listening, the title of the story was given to the students as "information" that they could make an idea about the content of the text. Based on the title of the text, it was aimed to recall the information they already knew about the subject of the text. However, this worked as a strategy of guessing rather than activating prior knowledge. For example: "I thought it was in a field" about the story of "unpopped corn and milk bottle" and "the letters of the alphabet" about the story of "alphabet." Nevertheless, it was thought that most of the predictions were not related to the content of the text and did not enrich comprehension. Before listening, it was seen that for both stories, the students' purpose of listening the story was to do an activity. The number of students who identified the purpose of listening and expressed this purpose as being curious about the story, liking to listen to stories, doing activities, and being able to answer questions correctly is minimal. However, students need to pay attention before and during listening. This can ensure selective and purposeful listening, as well as activating students' prior knowledge and enabling them to predict and check the accuracy of their predictions. This situation supports the necessity of listening strategies for students since the main purpose of listening is comprehension. When the experimental studies on primary school students' listening skills in the first language are examined, it is noteworthy that listening skills are evaluated as the ability to remember, understand or interpret the message heard (Brownell, 2012). In addition, studies have focused on variables such as gender and first language in the primary school context (e.g., Yıldız & Kılınç, 2015) or language skills such as vocabulary (e.g., Hagvet, 2003; Stæhr, 2009, Wolfgramm et al., 2016). However, teaching listening strategies positively affects listening skills (Bourdeaud'Hui, et al., 2018). Because having reasons before listening or setting a purpose can enhance students' comprehension skills by allowing them to anticipate what will occur in the text (Aarnoutse & et al., 1998). Associating what they listen to with their prior knowledge and experiences can help them better understand the text they encounter, whether it is narrative or informative. Effective listening comprehension skills are an important prerequisite for primary school students' academic achievement (Bourdeaud'Hui et al., 2021). Whether in Turkish or other subjects, listening is essential for comprehension, and students need to have clear listening goals. Apart from repeating and asking questions during listening, there are very few students who do not know any strategies for listening and very few students who can benefit from strategies. In a similar study conducted by Gökmen, Çetin, and Ulusoy (2019), it was stated that "the vast majority of students lack pre-listening, during-listening and post-listening strategies". However, in order to facilitate the comprehension of an oral story, listeners should use basic strategies such as note-taking, visualization, asking questions, prediction, comparison, and finding the main idea while listening along with their linguistic knowledge (Liu, 2008). In that way, the topic and main idea of the text can be determined by obtaining meaning in the listening process.

As a result of the research findings, the number of students who found the message given in the story after listening is small. However, if students listen efficiently, they are able to actively connect new information to their prior knowledge, which enables them to make inferences about the text and monitor their own comprehension (Bourdeaud'hui et al., 2018). Students' ability to outline what they listen to helps them organize and remember information. Similarly, summarizing, inferring, and rephrasing are necessary as a result of listening. Gaining the habit of summarizing what they listen to in their own sentences can help them think about what they can do to be an effective listener while developing their expressive language skills. When the related literature is examined, it is seen that there is a limited number of studies on listening strategies for primary school students in native language (e.g., Acat et al., 2016; Katrancı & Yangın, 2012; Yıldırım et al., 2010; Yıldız & Kılınç, 2015). For this reason, future studies can be conducted on the teaching and development of listening strategies.

Conclusion, Discussion and Suggestions for Story Elements

As a result of this study, which was conducted to determine which story elements third grade primary school students identified during the listening process, it was seen that the majority of the students identified the characters and the setting of the story (place & time) based on the narration process. The fact that the elements that the students included in the listening comprehension process were

characters and setting may suggest that these are the most memorable / focused elements in the story. As a result of the study conducted by Özkan (2016) with primary school fourth-grade students, it was seen that in the study conducted by Ulu (2019), in which the creative writing skills of primary school fourth-grade students were examined, students mostly included character, place and time elements in the stories they wrote. In the study conducted by Gökmen, Çetin, and Ulusoy (2019), it was stated that students gave the most space to the character among the story elements. In a story, the character is the either a person or people at the center of the story. It is more useful to have interesting characters for children as getting to know the characters supports their social and emotional development such as empathizing and taking examples. The unusual characters in the stories presented in the study are inanimate objects (such a milk bottle, unpopped corn, letter A) and individuals that children can put in their own shoes (Ali, his family, etc.). This is useful in terms of identifying text types. Different characters can form the basis for children to recognize text types (fables, stories, fairy tales, etc.) and distinguish the differences between them.

In the process of understanding the story, some of the students confused the events in the story with the beginning of the story. In the story, an initiating event that enables the main character to form a purpose is replaced by sequential attempts to realize his/her purpose. However, the plot has a structure that attracts the attention of the reader or listener, arouses curiosity, and includes a beginning, development, and solution. For example, students characterized the initial event of the story such as "the disappearance of the letter A" as sequential events in the story. However, after listening to the narration of their classmates, they were asked to retell this in writing to show that they understood the story. This situation can be considered as a result of not using listening strategies such as taking notes, asking questions and repetition during listening. Because it is thought that they can remember the sequence of events more clearly and accurately by using appropriate strategies. Plot is important because it develops children's ability to establish cause-effect relationships and problem-solving skills. For example, Pellegrini and Galda (1982) found that children do not fully remember stories until they are about 8 years old, but they can answer questions about many aspects of the story and retell the story in an organized order. However, the event that starts the story can sometimes be retold as a problem situation for the characters. The ways in which characters cope with the problems they face can support children's problem solving and stress coping skills. Baştuğ and Keskin (2013) conducted a study with 2nd, 3rd, and 4th grade primary school students and found that the students in the research group had quite low success in identifying the problem in narrative texts.

As a result of the research, some of the students confused the message of the story with the outcome of the story. The conclusion is directly related to the problem and expresses what the actions taken by the character reveal. However, the message of the story reveals what kind of lesson should be learned. To give an example of this confusion, the statement "it is important to be economical when consuming food and beverages" is a message, while the protagonist of the story "Ali learned his lesson and never left his food half-finished again" is a result. Similarly, as a result of the study conducted by Şahin (2012), it was stated that primary school students were quite inadequate in terms of their ability to find main ideas. Again, as a result of the study conducted by Yekeler and Cengiz (2018) with preschool students, it was stated that the majority of the students could not reach a conclusion in the story. Brown (1975) argued that the explanation skills required in storytelling tasks show a significant development between kindergarten and second grade and stated that kindergarten students could not recall the stories verbally in order, while second graders could. She emphasized that children's comprehension skills, not their ability to remember the story, were responsible for the age differences. This situation supports the necessity of using reading and listening strategies for children to know the story structure better.

Although more than half of the students stated that the events in the story were not told in order and that the story did not have a beginning and an end, more than half of the students stated that they understood a story that did not have a beginning or an end or both. This situation shows that they could not make a healthy self-evaluation. It is thought-provoking that the students answered yes to the option "I understood the story I listened to from my friend" when they stated that they understood the

story without the place, time, beginning, events and conclusion of the story in the process of listening comprehension, that is, most of the elements were missing. Similarly, it is necessary to understand the story in order to find the intended message in the story. In order to understand the story, the story elements must be complete and clear. This situation was also reflected in the students' inference/message sentences with the story. For this reason, "story structures should be fully taught and especially the problem should be emphasized" (Baştuğ & Keskin, 2013). Because stories can contribute to creative thinking and problem-solving skills by developing children's imagination, language skills, social skills, and cognitive skills. They can instill in children's basic values such as right and wrong, good, and evil, justice and compassion. This applies to both the comprehension and narration process. Therefore, story comprehension and retelling are important activities that support children's cognitive, emotional, social, and moral development. They can improve their vocabulary through the stories they listen to from their friends. It also allows them to make peer evaluations.

Studies on story elements are generally on writing skills (Baştuğ & Keskin, 2013; Chen & Lui, 2021; Özkan, 2016; Şahin, 2012; Ulu, 2019; Yasul, 2014). While narrative skills can be supported through activities such as story writing, oral storytelling is important as a skill and needs to be worked on. At the primary school level, activities related to the story can be out of the ordinary, and instead of listening to and reading the story, various activities related to story animation, storytelling using finger puppets, story visualization, and vocalization can be done. This can provide a rich learning experience by improving their comprehension and expression skills by enabling them to use oral, dramatic, visual, musical, and digital formats rather than written texts.

Limitations

This research is limited to 100 students studying in the 3rd grade of primary school in the city center of Giresun. The process of primary school students telling the stories they read to each other in turn with finger puppets is reciprocal. The narrating student's incomplete narration, incorrect narration, etc. were determined by his/her desk mate. At this point, it is also important how well the listening child is an effective listener or how well he/she understands. The reason third grade students were selected for the study is based on the general assumption that students are capable of describing what they have read in outline and determining the main idea and subject of what they listen to. The students' determinations about the beginning, place, time, characters, events in the story, message/conclusion, etc. related to a story they have not read and listened to, and their determinations about whether they understand the story or not are limited to their written statements and voice recordings.

Ethics and Conflict of Interest

In this study, I declare that the rules stated in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" are complied with and that we do not take any of the actions based on "Actions Against Scientific Research and Publication Ethics". For the research, at the meeting of Giresun University Social Sciences, Science and Engineering Sciences Research Ethics Committee Commission dated 03.01.2024 and numbered 01/09, it was unanimously decided that there was no ethical objection with the research code 19237. The author declares that they have no conflict of interest.

Data Availability Statement

Data generated or analyzed during this study should be available from the author on request.

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APPENDIX

Appendix 1. Data Collection Tools

LISTENING TO A STORY FROM MY FRIEND - PART I
BEFORE LISTENING TO THE STORY;
1. I thought about what I might know about the story I am going to listen to: Yes No
.....
2. I determined my purpose for listening to the story: Yes No
.....
DURING LISTENING TO THE STORY;
4. I took notes to understand the story while listening to it: Yes No
.....
5. I asked questions to understand while listening to the story: Yes No
.....
6. While listening to the story, I wanted to listen to it again to understand it: Yes No
.....
AFTER LISTENING TO THE STORY;
7. I found the intended message of the story: Yes No
.....

I LISTEN TO A STORY FROM MY FRIEND - PART II
AFTER LISTENING TO THE STORY;

8. I listened to the story from my class mate .....
Choose the good thing(s) that your classmate who told you the story did;
9. He/she talked about characters in his/her story. Yes No
.....
10. In his/her story, he/she mentioned the time and place where the story takes place. Yes No
.....
11. He talked about the events in the story. Yes No
.....
12. His/her story had a starting point. Yes No
.....
13. His story had a conclusion. Yes No
.....
14. Tell the storyteller something positive/negative about his/her story:
.....
15. I understood the story I heard from my friend: Yes No

Appendix 2. Stories

ALPHABET
Like every morning, the city of Alphabet woke up this morning happy for the new day. But unlike every morning, this happiness was short-lived this morning. On the day of the census, they saw what they saw. The letter A was nowhere to be seen. The letters R and F, the city's population officials, immediately got to work and started looking for the letter A with other employees. First, they went to the polar bear. The bear brother, who was terribly upset, said that he had last seen the letter A yesterday and had not heard from him since. The polar bear, who was obviously in a panic, said that he wanted the letter A to be found as soon as possible, otherwise it would never snow again, so he might die. However, just like the polar bear, the donkey said that the last time he saw the letter A was last night. He was very scared just like the polar bear. He said that he wanted the authorities to find the letter A as soon as possible, that he could not make a sound without the letter A and that his other

friends did not believe that it was a donkey. They all started looking for the letter A. They knew that without the letter A, they would never be able to eat fruits like apples and pears again. That is why they took their work very seriously, looking under every stone and at the top of every tree. Although the surrounding cities were informed and they searched for days together, the letter A could not be found. A few weeks later, news spread in the Alphabet City that the letter A was heading towards the city of people who could not speak (people with speech impediments). They immediately took a bus and traveled to the city to meet people who could not speak without wasting any time. When they reached the city, they saw the letter A sitting under a tree and immediately went to him. They told him one by one what difficulties they had experienced without him and asked him to return to the city. Letter A told them that he had not left to upset them, but that he had come here because he wanted the people here to be able to make at least one sound, even if they could not make a sound. The other letters were very touched by this noble act and could not hold back their tears. They agreed among themselves and told letter A that they had decided to stay in the city of non-speaking people to support him. At the end of the story, the non-speaking people were able to understand each other, taste all kinds of fruits and hear the voices of all other living things.

UNEXPLODED CORN AND MILK BOTTLE

Ali and his family were going to watch a good movie on TV that evening. The popcorn that would be eaten while watching the movie was in the pot waiting for the moment when it would pop. One corn kernel, called Zıpzıp by his friends, was about to pop when Ali's mother turned off the stove and the popcorn was left unpopped. After Ali and his family watched the movie, when his mother went to clean up the garbage and dishes that had accumulated while popping the popcorn, she emptied the pot of popcorn out the window. The Zıpzıp who was left at the bottom of the pot jumped out of the window. Zıpzıp, who was incredibly sad and separated from all his friends, suddenly started to cry. He started walking in this city where he knew nowhere. Suddenly he felt someone calling him. He looked around but saw no one. Then the same voice came again. Who is it with a little fear? He said, but he was waiting for the answer with fear. Then a half-empty milk bottle appeared in the corner. Hello, said the Zıpzıp. How you know me, said the Zıpzıp. The milk bottle said, “Is that a question? Of course I know you from Ali's house. Until last night, I was milk that lived there, too. Last night Ali drank some of me and then threw the rest of me into the street, fortunately I survived without breaking. Then the children in the street played with me like a ball and I was dragged all the way here. Zıpzıp suddenly realized how much waste Ali and his family was causing and decided to teach Ali and his family a lesson with the milk bottle. The two, who were exceptionally good friends, immediately went to Ali's house. They secretly carried everything in the refrigerator out of the house. Ali, whose parents were not at home, opened the fridge when he was hungry and his mouth dropped open. How could this have happened? The fridge was empty. Since his family was not at home and he did not have his own key, he could not go out and get something. When his family arrived, Ali was about to faint from hunger. As he waited for his family, he thought of the milk, half of which he drank and threw the rest out. I wish I had not wasted it. I would drink that milk now, but it was too late. When Ali was hungry until the evening that day, he realized some things. He thought that nothing should be wasted. From that day on, he never left anything he ate or drank unfinished. The unpopped corn and the half-finished bottle of milk were proud of themselves for teaching Ali such a lesson.