

Yapay Zekâ Öğretmen Adaylarına Karşı: Bir Sosyal Öykü Karşılaştırması

Artificial Intelligence Versus Pre-Service Teachers: A Social Story Comparison

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ABSTRACT

This study compares social stories prepared by pre-service teachers and AI-generated social stories, focusing on the story preparation process, the appropriateness of social stories, and pre-service teachers' views on technology and artificial intelligence. Designed as a case study, the research involved 11 pre-service teachers enrolled in a special education teacher education program. Social stories were created by the participants and generated using AI tools (ChatGPT for text generation and DALL·E for visual production). Data were collected through AI-generated social stories, semi-structured interviews, expert evaluations using the Social Story Evaluation Guide, and researcher diary entries. Social stories were evaluated across 12 criteria, including structural organization, language use, perspective, appropriateness of visuals, and alignment with social story principles. The findings indicated that social stories prepared by pre-service teachers outperformed AI-generated stories on nine criteria, whereas AI-generated stories showed stronger performance on one criterion, with equivalent results observed on two criteria. The findings highlight the potential of AI as a supportive tool in social story development while emphasizing the continued importance of pedagogical judgment and systematic training in AI use. The study offers implications for teacher education programs and the informed integration of AI into special education practices.

Keywords: Artificial intelligence, social stories, pre-service teachers, educational technology, special education.

ÖZ

Bu çalışma, öğretmen adayları tarafından hazırlanan sosyal öyküler ile yapay zekâ tarafından üretilen sosyal öyküleri; öykü hazırlama süreci, sosyal öykülerin uygunluğu ve öğretmen adaylarının teknoloji ile yapay zekâyâ yönelik görüşleri açısından karşılaştırmaktadır. Durum çalışması deseninde tasarlanan araştırma, özel eğitim öğretmenliği programına devam eden 11 öğretmen adayı ile yürütülmüştür. Sosyal öyküler, katılımcılar tarafından hazırlanmış ve yapay zekâ araçları (metin üretimi için ChatGPT, görsel üretimi için DALL·E) kullanılarak oluşturulmuştur. Veriler; yapay zekâ tarafından üretilen sosyal öyküler, yarı

yapılandırılmış görüşmeler, Sosyal Öykü Değerlendirme Rehberi kullanılarak yapılan uzman değerlendirmeleri ve araştırmacı günlüğü aracılığıyla toplanmıştır. Sosyal öyküler; yapısal düzen, dil kullanımı, bakış açısı, görsellerin uygunluğu ve sosyal öykü ilkeleriyle uyum gibi ölçütleri içeren toplam 12 kriter üzerinden değerlendirilmiştir. Bulgular, öğretmen adayları tarafından hazırlanan sosyal öykülerin dokuz kriterde yapay zekâ tarafından üretilen öykülerden daha yüksek puan aldığını; yapay zekâ tarafından üretilen öykülerin bir kriterde daha başarılı olduğunu ve iki kriterde ise eşdeğer sonuçlar elde edildiğini göstermiştir. Elde edilen bulgular, yapay zekânın sosyal öykü geliştirme sürecinde destekleyici bir araç olarak kullanılabileceğini ortaya koyarken, pedagojik yargının ve yapay zekâ kullanımına yönelik sistematik eğitimin önemini vurgulamaktadır. Çalışma, öğretmen eğitimi programları ve yapay zekânın özel eğitim uygulamalarına bilinçli bir şekilde entegre edilmesine yönelik önemli çıkarımlar sunmaktadır.

Anahtar Kelimeler: Yapay zeka, sosyal öykü, öğretmen adayları, eğitim teknolojisi, özel eğitim.

INTRODUCTION

Technological developments, supported by advances in scientific knowledge, have become increasingly embedded in daily life and educational contexts. This ongoing transformation has had a profound impact on education, reshaping teaching and learning processes as well as the tools and methods used in instructional practices. Developments such as virtual reality, the metaverse, mobile technologies, and artificial intelligence (AI) are increasingly at the forefront of educational practices (Bates, 2015; Çam et al., 2021; Talan & Kalinkara, 2023). AI, as an interdisciplinary field, enables machines to solve complex problems and make decisions, bringing human-like reasoning to technological applications (Obschonka & Audretsch, 2020). In education, AI is utilized for adaptive learning, assessment, and personalized teaching, with potential benefits for both educators and students (Huang et al., 2021). Moreover, they are effectively used to individualize learning based on student needs, provide immediate feedback to students, evaluate student performance to inform educational decisions, and support educators (Baidoo-Anu & Ansah, 2023; Marino et al., 2023; Zhai, 2022). Despite these advancements, the integration of AI into education has raised critical challenges, including ethical concerns, accessibility barriers, and the potential for reduced interpersonal interaction (Bozkurt & Sharma, 2020; Zhai, 2022). For instance, tools like ChatGPT may simplify tasks such as completing assignments, but they also pose risks of misuse and diminished student engagement (Adeshola & Adepoju, 2023). Such complexities are particularly significant when considering the education of individuals with disabilities.

To enrich the learning environments of individuals with disabilities and support their learning processes, a variety of tools can be utilized, considering their individual differences and requirements. These tools include video technologies, assistive technologies, computer-assisted applications, interactive whiteboards, augmented reality (AR) applications, audiobooks, and text-to-speech software (Butterworth & Laurillard, 2010; Jones et al., 2006; Kennedy et al., 2014; Mokmin & Rassy, 2024). These tools provide effective solutions to enhance students' active participation in the learning process, deepen their understanding, and promote their independence. Particularly in areas such as autism spectrum disorder (ASD), educational practices supported by technology are gaining prominence. For instance, the social stories method (Gray, 2010) is an effective tool for teaching social skills to students with ASD, directly supporting the professional competencies of educators in this context. Social stories help students understand and navigate social situations by addressing specific behaviors or skills in a structured, relatable format (Gray & Garand, 1993; Scattone et al., 2006). These stories are tailored to the child's perspective and enriched with visuals to deepen understanding and engagement (Qi, 2018; Kokina & Kern, 2010).

Over time, the scope of social stories has expanded beyond teaching social skills solely to children with ASD, demonstrating their applicability in supporting both social and functional skill development among individuals with diverse special needs. Research indicates that social

stories have been implemented to enhance workplace participation among adults with intellectual disabilities (Bucholz et al., 2008), promote online safety skills (Kaya & Ünal, 2022), support the acquisition of classroom-based social skills (Piper et al., 2024), teach safety skills to children with ASD (Kurt & Kutlu, 2019), decrease problem behaviors (Agosta et al., 2004), and improve social skills in children with learning disabilities (Kalyva & Agaliotis, 2009). Moreover, social stories are recognized as evidence-based practices. Evidence-based practices are defined as instructional approaches whose effectiveness has been validated through systematic and rigorous research, providing educators with reliable guidance for instructional decision-making (Odom et al., 2010). In this context, social stories have been identified as evidence-based practices in reports issued by the National Autism Center (2009, 2015), the National Professional Development Center on Autism (2014), and the National Clearinghouse on Autism Evidence & Practice (2020). Additionally, a meta-analysis conducted by Olçay et al. (2022) reported a large effect size for social stories in promoting appropriate behaviors and reducing inappropriate behaviors. When studies on social stories are examined, it is observed that various technologies such as tablets and video modeling have been used to deliver social stories to students with ASD (Bernad-Ripoll, 2007; Sansosti & Powell-Smith, 2008; Turhan, 2015; Vandermeer et al., 2015). Additionally, social stories have been prepared and presented by different individuals such as mothers, siblings, and preservice teachers (Acar, 2015; Bıçakçı & Olçay-Gül, 2019; Boşnak & Turhan, 2020; Değirmenci, 2018; Olçay-Gül & Tekin-İftar, 2016; Quilty, 2007).

Although technological tools have been used in the creation and presentation of social stories, research examining their role in the writing process remains limited. Traditional methods allow for social story preparation but often lack flexibility in dynamically updating content or selecting visuals aligned with a child's individual characteristics, interests, and learning needs. Technology can address these limitations by enabling customization, dynamic updates, multilingual content, audio narration, and easier sharing, thereby enhancing the accessibility and educational effectiveness of social stories. Recent advances in AI, particularly in natural language processing, offer new opportunities to generate individualized instructional materials, such as social stories. However, studies on AI-supported social stories remain scarce. Zaklas and Gazit (2025) found that AI-generated social stories were evaluated more positively when targeting the increase of appropriate behaviors, whereas human-authored stories were favored for reducing challenging behaviors. Similarly, Danish and Al Shammari (2025) reported that although AI-supported social stories were perceived as beneficial for students with ASD, concerns were raised regarding cultural mismatches due to their grounding in Western norms. Overall, existing research has largely focused on perceptions and outcomes, rather than the AI-based social story generation process itself and has rarely evaluated AI-generated stories according to established social story principles. This gap highlights the need for a systematic investigation of AI-supported social story development grounded in pedagogical criteria.

AI takes these advantages a step further by making the social story creation process smarter, more efficient, and highly personalized. AI systems can analyze individual needs, generate appropriate content, and adapt stories based on feedback from educators or caregivers. Furthermore, AI allows for dynamic adjustments to social stories in response to a child's immediate reactions or learning pace and extends their reach across cultural contexts through multilingual support. Given the necessity for social stories to adhere to established principles, it is critical to evaluate and compare the appropriateness of AI-generated social stories, as operationalized in this study through predefined criteria such as structural organization, language use, perspective, visual appropriateness, and alignment with core social story principles. This study aims to explore the process of AI-assisted social story creation by preservice teachers and assess the outcomes of integrating such technology into the preparation process. The findings are expected to demonstrate how AI can simplify the creation of effective social stories, particularly for teaching various skills to individuals with disabilities, including those with ASD. Moreover, the research will provide valuable insights into preservice teachers'

perceptions of technology, AI, and the social story preparation process, contributing to the growing understanding of AI's potential in education. This study seeks to examine pre-service teachers' views on technology and artificial intelligence in the context of their use of AI applications. In addition, it explores pre-service teachers' opinions regarding the social stories they create using AI tools and their experiences during the story preparation process. Finally, the study compares the scores of social stories generated using artificial intelligence applications with those prepared by pre-service teachers who have completed a course on social story preparation.

METHOD

2.1. Research Design

A qualitative case study design was adopted to guide the research process. Case studies are appropriate when a phenomenon is closely embedded in its real-life context and requires in-depth examination (Yin, 2004). In this study, the case was defined as (a) the creation of social stories by pre-service teachers trained in AI-based social story development, (b) the evaluation of these social stories, and (c) the perspectives of pre-service teachers on the social story preparation process.

2.2. Participants

The study involved 11 pre-service teachers enrolled in a special education teacher education program. As part of the research procedures, participants were required to develop social stories through both independent (human-authored) writing and AI-assisted production. All pre-service teachers completed both tasks in full. Detailed demographic information about the participants is provided in Table 1.

Table 1

Demographic Profile of the Participating Pre-service Teachers

Participant Code	Age	Gender	Daily Internet Usage Hour
Participant1	22	Woman	6
Participant2	21	Woman	4-5
Participant3	22	Woman	14
Participant4	21	Woman	12-13
Participant5	22	Woman	6
Participant6	22	Man	3
Participant7	22	Woman	5-6
Participant8	23	Man	3
Participant9	21	Man	4
Participant10	22	Man	6-7
Participant11	22	Woman	4

2.3. Researchers and Roles

The researchers took part in the stages of the research process with different roles and tasks. All the researchers had experience in social story writing and implementation. Researcher 1's responsibilities during the research process are as follows: Identification of participants, determination of social story topics, keeping a researcher's diary, AI applications training, the process of creating social stories, conducting semi-structured interviews, transcript of semi-structured interviews, data analysis, and reporting of data. Researcher 2's responsibilities during the research process are as follows: Preparation of research protocols, preparation and finalization

of interview questions, preparation of the Social Story Evaluation Guide, the process of evaluation of social stories by experts, data analysis, and reporting of data. The responsibilities of Researchers 3, 4, and 5 during the research process are as follows: Identification of participants, determination of social story topics, creating social stories, transcript of semi-structured interviews, and reporting of data.

2.4. Experts

The experts consisted of four individuals with research and professional experience in special education and social story development. Their role in the study was limited to evaluating the social stories created by pre-service teachers and generated through artificial intelligence applications. All experts had prior experience in social story writing, implementation, and evaluation, and they independently assessed the social stories using the predetermined evaluation rubric. Information regarding the demographic characteristics of the experts is presented in Table 2.

Table 2

Demographic Profile of the Participating Experts

Participant Code	Age	Gender	Daily Internet Usage Hour	Area of Specialization
Expert 1	38	Man	4	ASD, social stories, teacher training
Expert 2	38	Man	6-7	ASD, social stories, teacher training
Expert 3	35	Man	6-7	ASD, social stories
Expert 4	35	Man	6-7	ASD, social stories, game

2.5. Data Collection Tools and Research Process

Researcher diary, interview, and evaluation form techniques were utilized to ensure data diversity in the study utilized. The research process was completed by following the steps of identifying participants, determining social story topics, training on artificial intelligence applications, creating social stories, evaluating social stories, conducting semi-structured interviews, and analyzing data.

2.5.1. Researcher Diary

Researcher 1 maintained a researcher diary throughout the study to enhance the credibility and trustworthiness of the research process. The diary was used to systematically document critical decisions, reflections, and observations made during different stages of the study. By recording methodological decisions and emerging impressions, the diary supported transparency in the research process and helped monitor potential researcher bias. During data analysis, the diary served as a reflective and confirmatory source, enabling the researchers to cross-check interview data and expert evaluations and to ensure consistency across data sources. In this way, the researcher diary contributed to the credibility and dependability of the study by supporting reflexivity and data triangulation.

2.5.2. Social Story Evaluation Guide

During the research, a social story evaluation guide was created in accordance with the findings of Çakmak (2017) for the evaluation of social stories prepared by pre-service teachers using artificial intelligence and according to what they learned in class. This guide consists of 12 items in total. This guide was shared with 5 different experts who have studies on social stories, and expert opinions were obtained. After feedback from the experts, the guide was finalized. In

order for social stories to be evaluated in this guide, the following items were included: Title, introduction-development-conclusion section, at least three sentences, writing in first or third person perspective, using social, emotional, constructive and tolerant language, avoiding making decisions on behalf of the individual, safety of visuals, using words in a real sense, answering 5W and 1H questions, maintaining sentence ratios so that the descriptive sentences are at least twice or more than the guiding sentences. If the social story contains the relevant item, it is marked as "1 point" and if it does not, it is marked as "0 points". The total score for the social story is then determined by adding the marked items. The highest score a social story can receive from the guide is 12, and the lowest score is 0.

2.5.3. Identification of Participants

Participants for the study were recruited via announcements shared with students in the special education program through online forms. Applications were reviewed to separate preservice teachers into two groups: those who had received training in social story writing and those who had not. From the trained group, 11 preservice teachers who volunteered to participate were selected through interviews. The social stories created during the study were evaluated by four experts with experience in social stories and ASD. Experts were identified through a review of relevant literature, focusing on individuals with prior work in these areas. These experts were informed about the study and invited to participate, with the first four who agreed serving as evaluators.

2.5.4. Determination of Social Story Topics

The social stories developed as part of this research were designed to teach social skills to students with ASD. To achieve this, at least 20 social skill topics were initially identified through rough evaluation forms aimed at evaluating the social skills of students with ASD. These topics were then reviewed by five experts with experience in ASD and social stories. Based on their feedback, the final set of social skill topics for the study was determined. The selected social story topics included: refusal, saying goodbye, asking for help, helping, sharing a toy, division of labor (e.g., sharing household responsibilities), expressing emotions, initiating communication with a peer, complimenting family members, and apologizing. These topics were presented to participants with the following instruction: "Can you write a social story that will be used to teach the 'refusal' skill to a 12-year-old student diagnosed with autism?" Participants were asked to use the same instruction to create a social story with the assistance of artificial intelligence.

2.5.5. AI Applications Training.

As part of the study, participants assigned to prepare social stories using AI applications received face-to-face training provided by the researchers. The training was conducted in two sessions, each lasting approximately 1–2 hours, and was supported by researcher-developed presentation materials. The training combined theoretical instruction and practical experience to equip participants with the necessary skills for using AI in special education. It began with an overview of the role of technology in education, with particular emphasis on its benefits in special education contexts. The historical development of technology in special education was discussed, highlighting its contributions to teaching processes. Specific attention was given to the role of AI in social story preparation, including its background, current applications, and educational potential in addressing the needs of individuals with disabilities. As part of the training, participants were provided with explicit guidance on creating high-quality prompts and on the key principles for preparing effective social stories using AI. This guidance focused on formulating clear, context-appropriate prompts, aligning content with the characteristics and needs of individuals with disabilities, and ensuring that social stories adhered to essential structural and pedagogical principles. The final part of the training involved a hands-on session in which preservice teachers worked directly with AI applications. During this session,

participants practiced applying the provided prompt guidelines, explored AI-supported tools, and gained experience in generating social stories under the guidance of the researchers.

2.5.6. Creating Social Stories

After receiving training on the use of AI applications, preservice teachers created social stories using ChatGPT (for text generation) and DALL.E (for visuals). These tools were selected by the researchers, as they were identified as the most effective and reliable AI-supported applications available at the time of the study. Topics were assigned randomly by having participants select sealed envelopes containing social story topics. Before starting, participants were provided with detailed instructions on Creating High-Quality Prompts and Guidance for Preparing Social Stories, as outlined in Table 3.

In the first phase, participants prepared social stories on their selected topics using the knowledge they had gained from the special education teaching program courses. This process was carried out on a computer with internet access provided by the researchers. Upon completion, each social story file was collected via external memory. After all participants submitted their stories, the envelopes containing the topics were reshuffled, and participants selected a new topic. In the second phase, participants used AI tools to generate social stories for their newly assigned topics. Importantly, the AI-generated social stories were used in their original form, and participants were not allowed to edit, revise, or modify the outputs in any way. Participants worked without a strict time limit, completing each task as needed. Upon completion of both phases, the researchers analyzed the 22 social stories created during the process. All stories were sent to the experts for evaluation via email without any further modifications.

Table 3

Creating High Quality Prompts and Guidance for Preparing Social Stories

1. Define the Goals of Social Stories	
a. Behavior/Skill	Identify a specific behavior or skill that the social story will focus on.
b. Target Group	Identify the age, developmental level and interests of the child for whom the social story will be written.
c. Scope	Determine the duration and level of detail of the story.
2. Characteristics of High-Quality Prompts	
a. Clarity	State what is expected of the AI using clear and understandable language.
b. Specificity	Provide clear information about the targeted behavior and context.
c. Context	Specify the setting of the story.
3. Visuals and Supporting Material	
a. Visual support	Create visuals that are appropriate to the story and that will attract the child's attention.
b. Alternative content	Ask them to create different visuals that fit the story.

2.5.7. Evaluation of Social Stories

The social stories were anonymized (i.e., no participant information and no indication of whether the story was AI-generated or human-authored) and shared with four experts with research experience in ASD and social stories. Experts independently evaluated each social story using the Social Story Evaluation Guide, which includes 12 criteria scored dichotomously (0 = not met, 1 = met). At the individual social story level, each expert could assign a total score ranging from 0 to 12 (sum across the 12 criteria). For each social story, expert scores were aggregated to obtain a single score per criterion (sum across experts; range 0–4, or mean 0–1) and, when needed, an overall score (mean across experts; range 0–12). In the findings, results were reported primarily at the criterion level. When criterion scores were summarized across the 11 social stories within each condition and across the four experts, the maximum possible value for a single criterion was 44 (11 stories × 4 experts × 1 point).

2.5.8. Semi-structured Interviews

Semi-structured interviews were conducted either face-to-face or online with participants who generated social stories using AI tools. This data collection method was preferred because it enabled the researcher to probe further and seek clarification when necessary. The interview protocol included questions addressing participants' perspectives on technology, artificial intelligence, and their experiences with AI-supported social story development. Following the completion of the story preparation tasks, all participants were interviewed regarding their views on technology, AI, and the overall social story creation process.

2.6. Data Collection, Analysis and Credibility

The study produced 240 minutes of audio recordings and a 75-page transcript from interviews with preservice teachers who created social stories using AI applications. Before analysis, the transcripts were reviewed by the third, fourth, and fifth authors, and shared with participants for confirmation. Data from researcher diaries and interviews were analyzed using thematic analysis, following Braun and Clarke's (2006) approach: coding the data, identifying sub-themes, and organizing them into main themes. The initial coding was performed collaboratively and then individually by the first and second authors. Afterward, researchers conducted four sessions to compare and refine the codes. Themes and sub-themes were finalized in subsequent meetings, with written notes taken to ensure verifiability. Inter-coder reliability was calculated using Miles and Huberman's (1994) formula ($\text{Reliability} = \text{Agreement} / [\text{Agreement} + \text{Disagreement}] \times 100$) and was determined to be 87%, indicating high consistency among researchers. The analysis process was supported by NVivo-12 software, which facilitated data organization and thematic exploration. Since the initial analysis addressed the research questions effectively, no additional interviews were conducted. The research adhered to fundamental ethical principles, including informed consent, confidentiality, respect for privacy, non-maleficence, non-deception, and fidelity to data (Christians, 2005; Yıldırım & Şimşek, 2003). The study was approved by the Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Committee with the decision dated 15.03.2023 and numbered 503617. This approval underscores the study's compliance with ethical research standards.

FINDINGS

The findings of the study are presented under two sections: those obtained from interviews and those derived from the evaluation of social stories. Following the analysis of the data gathered from interviews conducted with participants, the themes of "the presence of technology," "artificial intelligence," and "artificial intelligence and social stories" were identified. These themes and their sub-themes are visualized and presented. Circles were used to represent the codes within the sub-themes. As the size of the circles increases, the level of participation in that code also increases. The data obtained from the evaluation of social stories created using artificial intelligence were also scored and presented.

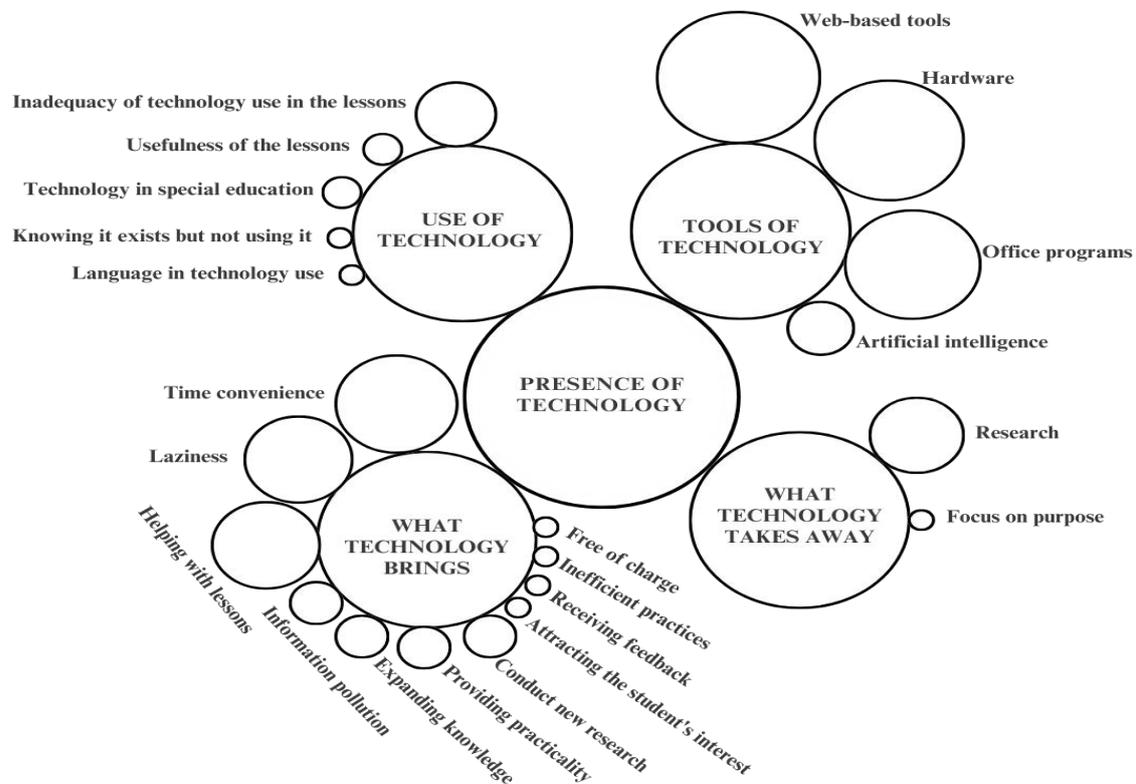
3.1. Findings from Interviews

3.1.1 The Presence of Technology

Under the theme of the presence of technology, four sub-themes were identified: (a) the use of technology, (b) what technology brings, (c) what technology takes away, and (d) technological tools. The sub-themes of the presence of technology and the codes within these sub-themes are presented in Figure 1.

Figure 1

The Presence of Technology Theme, Subthemes, and Codes



The findings of the study revealed that preservice teachers emphasized the beneficial aspects of using technology in their daily lives and in classes but highlighted its insufficient use. Regarding this, Participant 3 expressed their thoughts by stating, "(...) I think that (using technology) is beneficial both personally and professionally," while Participant 8 remarked, "(...) In our lessons, everything is mostly carried out through slides on a smartboard. Apart from that, there isn't much." The findings also showed that although preservice teachers are aware of and recognize the importance of using technology in special education, it is not utilized sufficiently. They attributed this to their inadequate level of foreign language proficiency. Participant 1 shared their thoughts by saying, "(...) I also realized my lack of English proficiency. Since we defined it in English, I believe I would have found better visuals if my English were at a more sufficient level." The preservice teachers stated that while technology provides them with time efficiency, it also brings a sense of laziness.

It is striking that, while technology helps with their lessons and expands their knowledge, it also creates information pollution. Preservice teachers stated that technology provides practicality, supports them in conducting new research, allows them to receive feedback easily, and helps capture students' attention more effectively. Participant 4 expressed this by saying: "(...) It generally attracts students' interest and attention. There are various interactive and different applications available." Preservice teachers also stated that although they benefit from free applications, there are many inefficient ones as well. Participant 9 expressed this by saying: "Some applications could be better, made more useful. These are the downsides." Preservice teachers seem to emphasize the impact of technology on their research process when discussing what technology takes away from them. Preservice teachers also stated that their focus on their goals has diminished. Participant 11 expressed this by saying: "(...) Since we can access so many

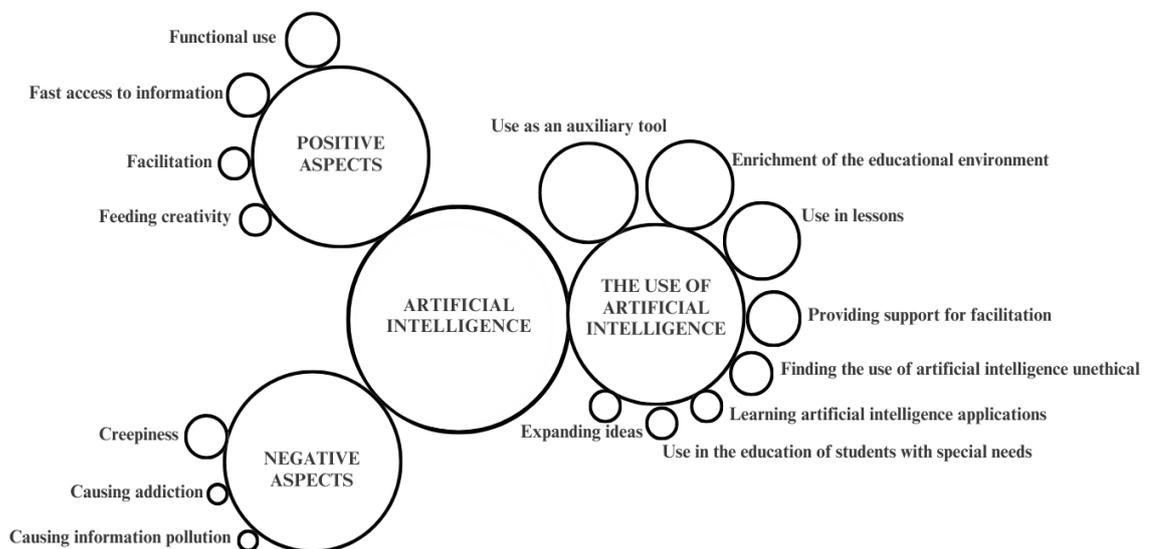
things, it can lead to a loss of time. It might cause us to deviate from our goal." The findings of the study revealed that preservice teachers primarily use web-based tools. Participant 1 stated: "The application I use the most is Canva. With this application, we can create colorful images and posters. Since we are students, free applications are very useful." Additionally, it was observed that preservice teachers also benefit from various software, Office programs, and artificial intelligence. Participant 5 expressed: "When doing assignments, I can access Google Scholar. Similarly, I use ChatGPT when researching articles."

3.1.2 Artificial Intelligence

Under the theme of artificial intelligence, three sub-themes were identified: positive aspects, negative aspects, and the use of artificial intelligence. The theme of artificial intelligence, its sub-themes, and the codes within these sub-themes are presented in Figure 2.

Figure 2

AI Theme, Subthemes, and Codes



The findings of the study reveal that preservice teachers use artificial intelligence as an auxiliary tool in their daily lives to enrich educational environments, support themselves by facilitating their lessons, and expand their ideas using AI applications. Despite the extensive usage areas of artificial intelligence, it is striking that preservice teachers do not find its use ethical. Regarding this, Participant 8 stated:

"I mean, if we are going to have it do the assignment directly, that's not the right thing to do because the assignment is a responsibility given to us. For topics we can't find, we can use it for minor help, but having everything done by artificial intelligence is wrong. Some people do this. Because in doing so, the purpose and benefit of the assignment are lost. It's not ethical."

Preservice teachers also stated that they would use artificial intelligence applications in the education of individuals with disabilities, and therefore, it is necessary for them to learn how to use these applications. Participant 3 expressed this by saying: "(...) I think we know very little about these applications. If we had a better grasp of them, I believe it would be better for our self-

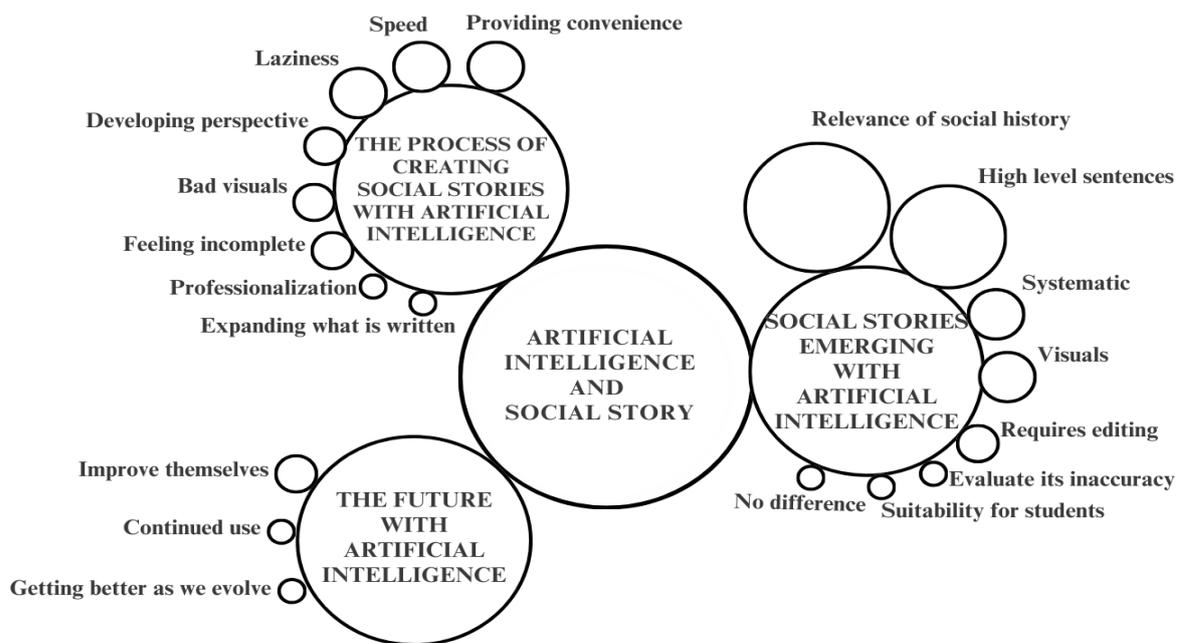
development." Preservice teachers stated that the functional use of artificial intelligence applications makes their work easier by providing quick access to information and nurturing their creativity. Regarding this, Participant 2 expressed: "I believe artificial intelligence greatly pushes the limits of people's creativity, and in a way, makes it much better, significantly expanding the imagination." On the other hand, it was observed that they find artificial intelligence frightening due to reasons such as causing dependency and supporting information pollution. Participant 3 stated: "On the other hand, it personally frightens me."

3.1.3. Artificial Intelligence and Social Stories

Under the theme of artificial intelligence and social stories, three sub-themes were identified: the process of creating social stories with artificial intelligence, the social stories produced with artificial intelligence, and the future with artificial intelligence. The theme of artificial intelligence and social stories, its sub-themes, and the codes within these sub-themes are presented in Figure 3.

Figure 3

AI and Social Story Theme, Subthemes, and Codes



The findings of the study show that preservice teachers found the process of preparing social stories using artificial intelligence to be facilitated and accelerated by AI applications. Participant 5 expressed this by saying: "Honestly, at first, I didn't think it could be very useful, but then when I tried it, it became simpler for me." It has been revealed that the use of artificial intelligence applications enhances professionalism, broadens perspectives, and improves the quality of written stories. Participant 11 stated: "Social stories are a concept within our field, and I think that when technology is integrated into this concept, it becomes more professional. I believe that incorporating technology into this process is a positive development." Additionally, it was expressed that the involvement of artificial intelligence applications in processes such as preparing social stories might make them feel lazy and inadequate, while also noting that the visuals produced were not appropriate. Participant 1 shared their thoughts as follows: "(...) I felt

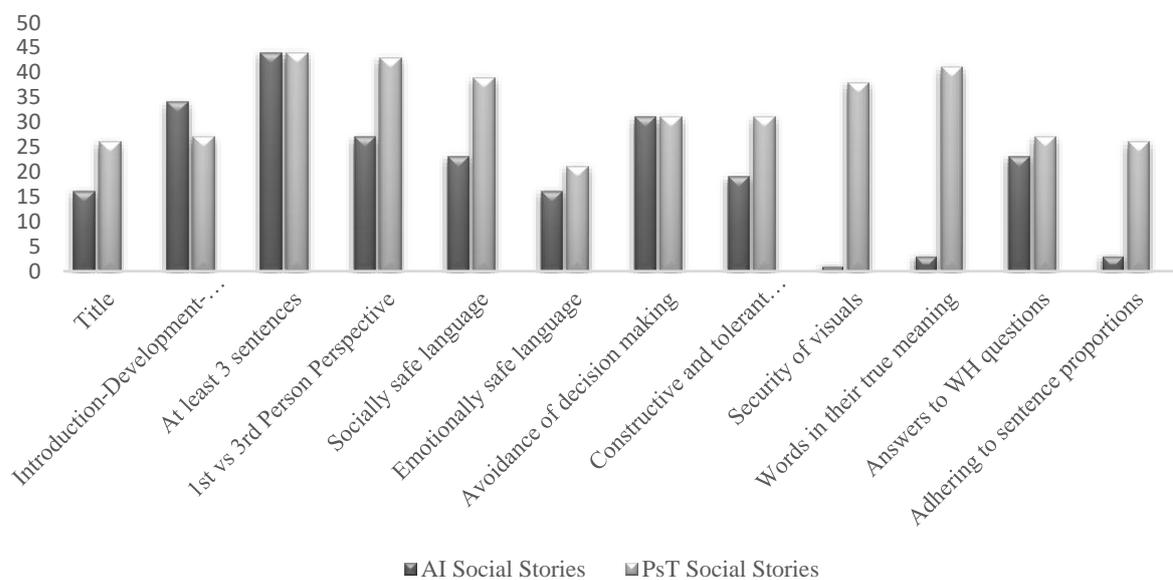
inadequate, but not in a way that caused sadness or that couldn't be addressed. It's more like I'm lacking in this area and I can improve myself." Preservice teachers stated that while the social stories they prepared using artificial intelligence applications were appropriate, the sentences were too advanced for social stories. It was observed that they acknowledged the systematic nature of social stories but indicated that adjustments were necessary. Although artificial intelligence applications facilitated finding visuals for their social stories, they mentioned that the stories might not be suitable for individuals with disabilities, demonstrating their ability to evaluate mistakes. Participant 2 shared their thoughts as follows: "What artificial intelligence produced was like something overly lengthy. It misinterprets the topic you provided and creates an incorrect story. You realize, 'No, this is not what I wanted.'" Regarding the future use of artificial intelligence applications, preservice teachers stated that they would continue using them and work on improving themselves in this area. Additionally, they expressed that artificial intelligence applications would become more effective in creating social stories as they develop further. Participant 4 shared their thoughts on the matter as follows: "I think that in the future, as artificial intelligence develops, it will meet our expectations almost perfectly."

3.2. Findings from the Evaluation of Social Stories

The results of the expert evaluations of the social stories created by preservice teachers and artificial intelligence tools are presented in Figure 4.

Figure 4

Expert Evaluation Results of the Created Social Stories



A total of 22 social stories (11 AI-generated and 11 prepared by pre-service teachers) were evaluated by four independent experts using a 12-criterion rubric scored dichotomously (0 = not met, 1 = met). Although the rubric allows for the calculation of an overall score, the present study focused on criterion-level analyses. Accordingly, expert scores were aggregated and reported separately for each criterion to enable detailed comparisons across specific dimensions of social story quality. The analysis revealed that social stories prepared by preservice teachers scored higher than those generated by AI applications in nine criteria, while AI applications outperformed in one criterion. Scores for the remaining two criteria were equal between the two groups. The

social stories created by preservice teachers received the highest scores in the following areas: Including a title in the story, being written from a first-person or third-person perspective, using language that is socially and emotionally safe, employing a constructive and tolerant tone, using safe visuals, ensuring the words used in the stories have their literal meanings, answering the 5W and 1H questions, adhering to the required sentence ratio (descriptive sentences being at least twice as frequent as directive sentences). A particularly notable difference in favor of preservice teachers was observed in the criteria of visual safety, literal use of words, and adherence to sentence ratios, indicating their significant advantage in these aspects. The AI-generated social stories scored higher than those created by preservice teachers in one criterion: Including clearly defined introduction, development, and conclusion sections in the stories. In two criteria, the scores for both preservice teachers and AI applications were equal: Having at least three sentences in the social stories. Avoiding making decisions on behalf of the student in the stories. These findings underscore that while preservice teachers excelled in ethical and linguistic aspects of social story creation, AI applications demonstrated a comparative advantage in structural organization.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

AI is increasingly positioned as a key component of contemporary educational practices (Carvalho et al., 2022); however, preservice teachers report insufficient training in integrating technology into lessons due to constraints such as large class sizes, dense curricula, and limited infrastructure (Turan Güntepe & Keleş, 2022). Negative attitudes toward educational technologies persist, with some educators favoring traditional methods due to potential challenges (Istemic et al., 2021; Prensky, 2008; Tallvid, 2016). Despite awareness of technological advancements, preservice teachers often struggle to use them effectively. Szymkowiak et al. (2021) emphasize that students emulate their teachers' technology use, making effective modeling crucial for fostering innovation.

AI, which is rapidly advancing across all fields, is expected to play a pivotal role in education soon (Carvalho et al., 2022). Although preservice teachers—the educators of tomorrow—primarily use computer-supported tools like web-based applications and Office programs, the inclusion of AI applications among these tools is noteworthy. While preservice teachers recognize the benefits of integrating technology into their lessons, they also report that the courses they take insufficiently incorporate technology. Key barriers include large class sizes, dense curricula, and time constraints, limited technological proficiency, and inadequate infrastructure (Turan Güntepe & Keleş, 2022). Despite evidence supporting the integration of educational technologies, negative attitudes toward their use persist, leading some educators to rely on traditional methods out of concern for potential challenges (Istemic et al., 2021; Kaban & Ergül, 2020;). Moreover, although preservice teachers are aware of technological advancements, they often fail to utilize them effectively. Szymkowiak et al. (2021) highlight that students emulate their teachers' use of technology, increasing the likelihood of future educators adopting innovative tools when technology is modeled effectively in the classroom.

The findings of the present study indicate that preservice teachers perceive the impact of technology on their lives as inherently dual, simultaneously recognizing its contribution to time efficiency and its potential to foster laziness. This ambivalence was evident in participants' accounts, where technology was described both as a facilitator of academic tasks and as a factor reducing sustained effort and in-depth engagement. Similar concerns regarding technology-induced laziness have been reported in previous studies (Harmandaoğlu Baz, 2019; Isman & Dabaj, 2003; Zengin & Uğraş, 2019); however, the present findings extend this literature by demonstrating how such perceptions are embedded in preservice teachers' everyday academic practices. In line with Baki et al. (2009), participants associated technology with both time saving

and time loss, suggesting that efficiency gains may coexist with diminished research depth. Notably, preservice teachers in this study explicitly linked technology use to a reduced need for in-depth research, highlighting a shift from exploratory learning toward more surface-level information access. While earlier studies reported that preservice teachers primarily use technology for professional purposes (Menzi et al., 2012), the current findings suggest that this professional use does not necessarily translate into deeper engagement. Consistent with prior research describing technology as a driver of change and development (Arslan & Zengin, 2017), participants generally emphasized positive aspects; however, the present study underscores the coexistence of these benefits with emerging concerns about reduced cognitive effort, particularly in the context of teacher education.

Preservice teachers emphasize the ethical implications of AI as one of the most critical considerations in its use. While AI holds the potential to revolutionize daily life and education, its ethical challenges, particularly in the context of preservice teacher training, are highlighted as a priority (Holstein et al., 2019; Pons, 2023). A significant concern in using AI for individuals with disabilities is the possibility that these students may be unaware of technological implications, such as data collection, storage, or access by AI tools (Ali et al., 2019). Therefore, it is essential for preservice teachers working with SEN students to understand and address these ethical issues. The insights of preservice teachers on AI, special education, and ethics provide valuable perspectives on these critical intersections. Beyond ethics, attitudes play a pivotal role in integrating AI applications into education. Although efforts to embed AI into teaching and learning processes have intensified, the success of such initiatives largely depends on teachers' attitudes (Kim & Kim, 2022). Preservice teachers' evaluations of AI applications reflect a nuanced perspective, acknowledging both their potential benefits and challenges. These evaluations reveal an ambivalence—while the possibilities of AI spark curiosity and optimism, concerns over risks and misuse evoke caution and fear (Kjeldgaard-Christiansen, 2024). This dual perspective underscores the importance of addressing ethical and attitudinal considerations in AI integration within education.

The social stories produced during the research process were evaluated by both preservice teachers and experts. While preservice teachers assessed the stories based on their own knowledge, experts used specific criteria for social stories to guide their evaluations. As with any story, the creation of social stories begins with setting a clear goal and selecting an appropriate title (Camilleri et al., 2024). Titles, a fundamental criterion for social stories, must be included in every story. However, evaluations revealed that both preservice teachers and AI-generated stories were often lacking in providing suitable titles.

Social stories, designed to match an individual's abilities, attention span, and learning style, should include a title, an introduction, a development section detailing the story, and a conclusion summarizing the information (Çakmak, 2017; Howley & Arnold, 2005). Additionally, each story must contain at least three sentences excluding the title (Gray, 2010). Given that individuals who use social stories may struggle with coherence, creating stories with a cohesive structure is essential (Gray, 2015). When the stories were evaluated for coherence—including the presence of a title, introduction, development, and conclusion—AI-generated stories scored higher. This highlights the importance of training preservice teachers to focus on maintaining coherence through these structural components. Language is another critical element in preparing social stories (Camilleri et al., 2023). The language used must be supportive, socially and emotionally safe, and demonstrate tolerance towards the individual (Çakmak, 2017). Key linguistic criteria include writing the story in the first or third person, avoiding figurative language, and ensuring that the language is constructive and respectful (Gray, 2010). Evaluations based on language-related criteria indicated that social stories prepared by preservice teachers outperformed those generated by AI, as AI-produced stories frequently included words used beyond their literal meanings and relied on overly complex sentence structures. Preservice teachers acknowledged that further development and refinement could enable AI tools to generate better social stories;

however, they emphasized that such improvements would not necessarily result in the best or most pedagogically appropriate outcomes when compared to human-authored stories. This finding highlights that, while AI holds potential as a supportive tool in social story development, expert human input remains critical for producing optimal-quality social stories.

The expert evaluation of social stories revealed a significant gap in the use of visuals, with AI-generated visuals deemed unsuitable for social stories. Preservice teachers echoed this concern, noting that the visuals produced by AI may not be safe for use. Effective visuals in social stories should align with the individual's interests, emphasize key information, and enhance understanding during the story's presentation (Çakmak, 2017). However, in this study, AI-generated visuals received very low ratings. The quality issues are believed to stem from limitations of the chosen AI tool, reliance on a free application, and users' inability to provide precise commands. These findings emphasize the need for caution when using AI to create visuals for social stories. Social stories must address the 5W and 1H questions and prioritize descriptive sentences over directive ones. Descriptive sentences provide clear and objective details about a situation, while directive sentences suggest specific actions or responses (Camilleri et al., 2023). Evaluations showed that AI-generated stories performed similarly to those created by preservice teachers in addressing the 5W and 1H criteria. However, both sets of stories required adjustments, highlighting the need for careful revisions to both text and visuals when creating social stories with AI. In terms of sentence ratios—another critical criterion—AI-generated stories fell short of meeting the required standards. Social stories should include at least twice as many descriptive sentences as directive ones, though there is no strict limit on the number of descriptive sentences (Gray, 2015). While preservice teachers' stories did not achieve exceptionally high scores, they performed significantly better than those created by AI. These findings suggest that greater attention must be given to sentence ratios in AI-generated social stories and that AI tools need improvement in this area. By refining AI tools and focusing on both linguistic and visual elements, the effectiveness of AI in creating social stories can be enhanced.

LIMITATIONS

The findings of this study are limited to the social stories created by the 11 pre-service teachers who participated in the research, and therefore may not be generalizable to broader populations. In addition, the quality of the AI-generated social stories was dependent on the prompts provided by the participants, suggesting that variations in prompt formulation may have influenced the outcomes. Another limitation relates to the evaluation process. Although expert evaluators had substantial experience in special education and social story development, the assessment of social stories inherently involves a degree of subjective judgment, which may have influenced scoring decisions.

Furthermore, while participants received training on the use of AI applications, this training may not have been sufficiently systematic or extensive to fully support effective AI use. The relatively lower performance of AI-generated social stories may therefore be partly attributed to participants' limited experience in crafting high-quality prompts and strategically guiding AI outputs. At the same time, it should be noted that AI-generated stories demonstrated stronger performance on certain criteria, indicating that AI tools can be effective in specific aspects of social story creation when appropriately guided. Finally, the study was conducted using ChatGPT and DALL·E prior to the release of later model updates (e.g., ChatGPT 4.0). As AI technologies continue to evolve, future studies employing updated tools and more comprehensive training protocols may yield different results.

CONCLUSION

This study demonstrated that AI tools can be used to support the creation of social stories; however, their effectiveness remains closely tied to how these tools are guided and integrated into pedagogical processes. In relation to the research questions, the findings revealed that while AI-generated social stories show potential in specific criteria, preservice teachers' social stories were generally evaluated as more pedagogically appropriate, particularly in language use and contextual sensitivity. The results further indicate that AI should be positioned as a supportive rather than a substitutive tool in social story development. Although AI tools can assist non-professional users such as families when provided with appropriate prompts, the findings suggest that effective use requires systematic training. From a teacher education perspective, this highlights the need to incorporate structured instruction on AI-supported content creation, including prompt design, ethical considerations, and pedagogical alignment, into preservice teacher training programs.

At the same time, the criteria in which AI-generated stories performed more favorably indicate areas where AI tools can be further developed and optimized for educational use. Improvements in AI systems that are specifically trained for social story construction and aligned with pedagogical principles may enhance their instructional value. Future research could examine the impact of more comprehensive and sustained AI training on social story quality, involve in-service teachers and families as users of AI-supported tools, and explore the use of AI in other story-based interventions. Such studies would contribute to a deeper understanding of how AI can be effectively and responsibly integrated into special education practices.

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GENİŞLETİLMİŞ ÖZET

Giriş

Gelişen teknolojik araçlar, eğitim ortamlarında köklü dönüşümlere yol açmakta; yapay zekâ (YZ), artırılmış gerçeklik ve mobil teknolojiler gibi uygulamalar öğrenme süreçlerini bireyselleştirme ve verimlilik açısından yeniden şekillendirmektedir (Bates, 2015; Talan & Kalinkara, 2023). Yapay zekâ, bireylerin ihtiyaçlarına göre uyarlanmış içerikler üretme ve öğrenci performansına göre dinamik geribildirim sağlama gibi işlevleriyle eğitimde yenilikçi çözümler sunmaktadır (Huang et al., 2021; Marino et al., 2023). Ancak bu gelişmeler, özellikle özel gereksinimli bireylerin eğitimi söz konusu olduğunda, etik, erişilebilirlik ve insan etkileşiminin azalması gibi sorunları da beraberinde getirmektedir (Bozkurt & Sharma, 2020; Zhai, 2022). OSB’li bireylerin sosyal becerilerini geliştirmede etkili bir araç olan sosyal öyküler (Gray & Garand, 1993), geleneksel olarak öğretmenler ya da bakım verenler tarafından bireyselleştirilerek hazırlanır. Son yıllarda, sosyal öykülerin teknoloji aracılığıyla sunulması üzerine çalışmalar yapılmış olsa da (Sansosti & Powell-Smith, 2008; Bernad-Ripoll, 2007), yapay zekâ destekli öykü üretimi henüz yeterince araştırılmamıştır. Bu bağlamda çalışma, öğretmen adayları tarafından yapay zekâ destekli sosyal öykü hazırlama sürecini incelemeyi ve bu teknolojinin hazırlık sürecine entegrasyonunun sonuçlarını değerlendirmeyi amaçlamaktadır. Araştırma bulgularının, özellikle OSB dâhil olmak üzere özel gereksinimli çocuklara çeşitli becerilerin kazandırılmasında etkili sosyal öykülerin hazırlanmasının yapay zekâ ile nasıl kolaylaştırılabileceğini ortaya koyması beklenmektedir. Ayrıca, bu araştırma öğretmen adaylarının teknolojiye, yapay zekâyâ ve sosyal öykü hazırlama sürecine ilişkin algılarına dair değerli içgörüler sunarak, yapay zekânın eğitimdeki potansiyeline dair artan bilgi birikimine katkı sağlayacaktır. Bu doğrultuda aşağıdaki araştırma sorularına yanıt aranacaktır:

Araştırma Sorusu 1: Yapay zekâ uygulamalarını kullanan öğretmen adaylarının teknoloji ve yapay zekâyâ ilişkin görüşleri nelerdir?

Araştırma Sorusu 2: Yapay zekâ araçları kullanarak sosyal öykü hazırlayan öğretmen adaylarının öykülere ve hazırlık sürecine dair görüşleri nelerdir?

Araştırma Sorusu 3: Yapay zekâ uygulamalarıyla oluşturulan sosyal öykülerin ve sosyal öykü hazırlama dersi alan öğretmen adayları tarafından hazırlanan sosyal öykülerin puanları nelerdir?

Yöntem

Bu araştırma, nitel araştırma yaklaşımlarından biri olan durum çalışması deseni ile tasarlanmıştır. Yin (2004) tarafından tanımlandığı üzere, durum çalışmaları, olgunun bağlamdan ayrıştırılmadığı ve çoklu veri kaynaklarıyla derinlemesine incelenmesinin amaçlandığı araştırma türleridir. Bu çalışmada ele alınan durum, yapay zekâ destekli sosyal öykü oluşturma süreci ve bu sürecin öğretmen adayları üzerindeki etkileridir.

Araştırmaya, özel eğitim öğretmenliği programına kayıtlı 11 öğretmen adayı ile sosyal öyküler üzerine uzmanlaşmış 4 alan uzmanı katılmıştır. Uzmanlar, öğretmen adaylarının ve yapay zekâ uygulamalarının hazırladığı sosyal öyküleri değerlendirmekle görevlendirilmiştir. Katılımcı öğretmen adaylarının günlük internet kullanım süreleri ve temel demografik bilgileri, teknolojiyle etkileşim düzeylerini ortaya koymak amacıyla tablolarla sunulmuştur.

Veri toplama süreci çoklu araçlar yoluyla gerçekleştirilmiştir. Araştırmacı günlüğü, süreç boyunca yaşananların sistematik biçimde kaydını tutmak amacıyla kullanılmış; bu günlük, özellikle katılımcıların seçimi, yapay zekâ eğitimi, sosyal öykü hazırlama ve görüşme süreçlerine ilişkin detayları içermiştir. Sosyal Öykü Değerlendirme Kılavuzu ise Çakmak (2017) temel alınarak geliştirilmiş ve uzman görüşleri doğrultusunda son haline getirilmiştir. Bu kılavuz, sosyal

öykülerin başlık, yapı, kişi zamiri kullanımı, dil özellikleri, görsel güvenliği gibi 12 ölçüte göre değerlendirilmesini sağlamıştır.

Araştırma süreci şu adımlarla yürütülmüştür: (1) Katılımcıların belirlenmesi, (2) sosyal beceri başlıklarının seçimi, (3) yapay zekâ uygulamalarına yönelik eğitim süreci, (4) sosyal öykülerin önce öğretmen adayları tarafından, ardından yapay zekâ ile hazırlanması, (5) uzman değerlendirmeleri, (6) yarı yapılandırılmış görüşmelerin gerçekleştirilmesi ve (7) verilerin analiz edilmesi.

Yapay zekâ eğitimi, katılımcıların teknolojiyi özel eğitim bağlamında nasıl kullanabileceklerine yönelik teorik ve uygulamalı bilgiler içermiştir. ChatGPT (metin üretimi) ve DALL·E (görsel üretimi) gibi araçlarla öykü oluşturma süreci, katılımcılara somut örnekler ve yönergelerle aktarılmıştır. Her öğretmen adayı, öncelikle eğitimde öğrendiği bilgilerle bir sosyal öykü hazırlamış, ardından farklı bir sosyal beceri konusu için yapay zekâdan destek alarak yeni bir öykü üretmiştir.

Elde edilen 22 sosyal öykü, tanımlayıcı bilgiler gizlenerek dört uzman tarafından değerlendirilmiştir. Her ölçüt için verilen puanlar ortalamalar alınarak analiz edilmiştir. Ayrıca öğretmen adayları ile gerçekleştirilen yarı yapılandırılmış görüşmeler, Braun ve Clarke (2006) tarafından geliştirilen tematik analiz yaklaşımıyla çözümlenmiştir. Kodlama süreci, araştırmacılar arası güvenilirlik sağlanarak yürütülmüş (%87 uyum), analizler NVivo-12 yazılımı yardımıyla gerçekleştirilmiştir.

Bulgular ve Tartışma

Araştırmada elde edilen bulgular iki ana kaynaktan türetilmiştir: öğretmen adaylarıyla gerçekleştirilen yarı yapılandırılmış görüşmeler ve uzmanlar tarafından yapılan sosyal öykü değerlendirmeleri. Görüşme verilerinin tematik analizi sonucunda üç ana tema ortaya çıkmıştır: teknolojinin varlığı, yapay zekâyâ yönelik algılar ve yapay zekâ ile sosyal öykü oluşturma süreci. Teknolojinin varlığı temasında öğretmen adaylarının teknolojiyi kişisel ve mesleki gelişim için faydalı buldukları, ancak özellikle yabancı dil yetersizliği ve altyapı eksiklikleri nedeniyle bu potansiyeli yeterince kullanamadıkları görülmüştür. Teknolojiyle olan etkileşimlerinde zaman kazanımı, araştırma kolaylığı ve öğrenci ilgisini artırma gibi olumlu yönler vurgulanırken, dikkat dağınıklığı ve amaçtan sapma gibi olumsuzluklara da dikkat çekilmiş, bu ikili yapı önceki çalışmalarla örtüşmektedir (Baki et al., 2009; Harmandaoğlu Baz, 2016). Yapay zekâ teması altında öğretmen adaylarının bu teknolojiyi yaratıcı süreçleri destekleyen bir yardımcı araç olarak benimsedikleri, ancak etik boyutuna dair ciddi çekinceler taşıdıkları görülmüştür. Bazı katılımcılar yapay zekâyı görevlerin doğrudan yerine getirilmesi bağlamında etik dışı bulmuş, bunun yerine sınırlı ve rehberlik odaklı kullanımı savunmuştur. Bu durum, Holstein ve arkadaşlarının (2019) ortaya koyduğu gibi, yapay zekâ uygulamalarında etik duyarlılığın özellikle öğretmen adayları için eğitimin önemli bir parçası olması gerektiğini göstermektedir.

Yapay zekâ ve sosyal öyküler teması çerçevesinde ise öğretmen adayları, yapay zekâ destekli sosyal öykü üretiminin süreci kolaylaştırdığını, ancak özellikle görsel üretim ve dil düzeyi açısından bazı sorunlara yol açtığını belirtmiştir. ChatGPT tarafından oluşturulan metinlerin çocuklara yönelik sosyal öykü yapısına göre fazla karmaşık bulunduğu, DALL·E tarafından üretilen görsellerin ise hedef kitle açısından uygun bulunmadığı ifade edilmiştir. Katılımcılar, yapay zekânın profesyonelleşmeyi ve vizyon genişlemesini desteklediğini, ancak eksik yönlerinin farkında olduklarını da açıkça dile getirmiştir. Uzmanlar tarafından yapılan sosyal öykü değerlendirmelerinde ise öğretmen adayları tarafından yazılan öyküler, toplam 12 ölçütün 9'unda yapay zekâdan daha yüksek puan almıştır. Bu ölçütler arasında başlık kullanımı, kişi zamiri tercihleri, toplumsal ve duygusal güvenli dil kullanımı, görsel güvenliği, 5N1K sorularına yanıt verme ve tanımlayıcı-yönerge cümle oranı gibi önemli unsurlar öne çıkmıştır. Buna karşılık, giriş-gelişme-sonuç yapısını koruma kriterinde yapay zekâ daha başarılı bulunmuştur. İki kriterde (üç cümle kuralı ve birey adına karar vermeme) eşitlik gözlenmiştir. Bu

sonular, ğretmen adaylarının zellikle sosyal ykye zg dilsel ve etik kriterlere daha fazla dikkat ettiklerini, yapay zek aralarının ise yapısal btnlkte daha bařarılı olduėunu gstermektedir. Tartıřma blmnde, ğretmen adaylarının teknolojiye dair bilgi dzeyelerinin ve pedagojik yeterliklerinin yapay zeky eėitimde etkili biimde kullanmalarında belirleyici olduėu vurgulanmaktadır. Ayrıca, yapay zek aralarının zel eėitim alanındaki potansiyelinin yksek olduėu ancak bu potansiyelin etik, ieriksel ve dilsel aılardan dikkatli ynlendirme gerektirdiėi sonucuna varılmıřtır. Eėitim teknolojilerinin etkili biimde entegrasyonu iin ğretmen adaylarının teknolojiyi sadece bir ara olarak deėil, pedagojik bir unsur olarak deėerlendirmelerini saėlayacak nitelikli eėitim programlarına ihtiya duyulduėu ortaya konmuřtur.