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The impact of ChatGPT-integrated reading activities on the reading attitudes and habits of middle school students

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Abstract

This study examines the impact of the artificial intelligence tool ChatGPT on middle school students' attitudes and reading habits during a brief intervention. Twenty-six students from a middle school in Türkiye—13 in the experimental group and 13 in the control group—took part in an eight-session, four-week quasi-experimental study. Both quantitative and qualitative data were collected using a sequential explanatory mixed-methods approach. Data was gathered and analyzed using the Attitudes and Habits towards Reading Scale, the Digital Literacy Scale, and focus group interviews. Preliminary results indicate that students in the experimental group had better reading habits and attitudes than those in the control group. After the ChatGPT intervention was implemented, the experimental group's students showed a significant improvement in their positive attitudes toward reading. However, the experimental group also showed an unexpected increase in negative reading attitudes, warranting further investigation. Three primary themes, covering both the advantages and disadvantages of the application, were identified from the student interview data. These results highlight how artificial intelligence (AI) technologies present a potentially novel way to boost reading motivation in educational settings. However, to use these technologies effectively, educators and students must acquire more knowledge and skills. Longer-term studies with larger sample sizes are also required to validate these initial findings.

Keywords: Artificial intelligence; Attitude; ChatGPT; Habit; Mixed methods; Reading

1. Introduction

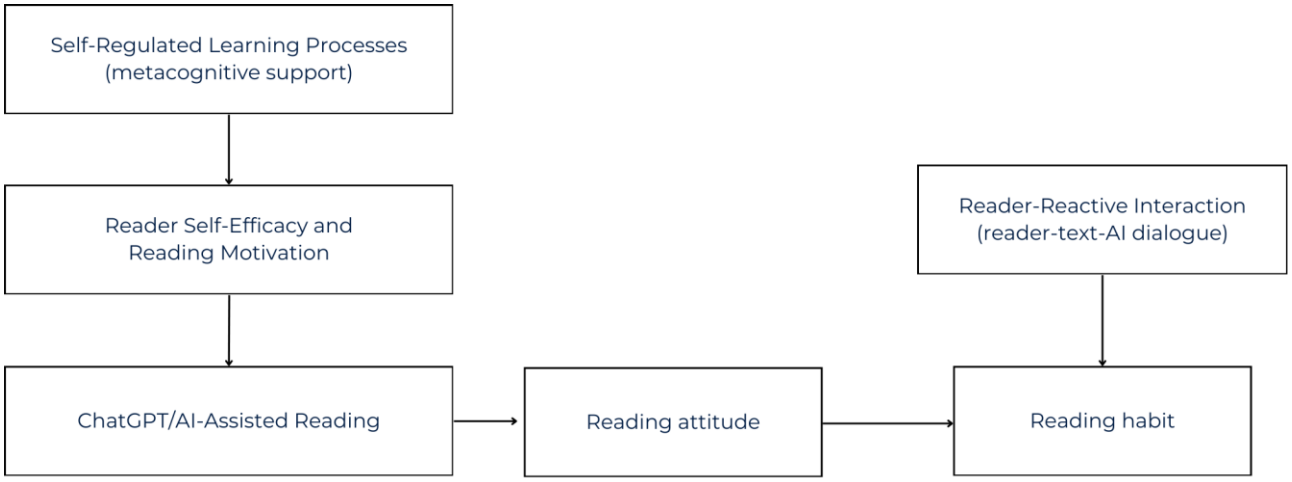
The rapid and steady advancement of technology has significantly impacted education systems. Serious questions have been raised about the role of technology in the learning process, as technological breakthroughs have transformed education. Basic literacy skills alone are increasingly viewed as insufficient in the context of technological production and digital innovation. Contemporary education systems focus on the idea of organizing reading and writing education and training accordingly. It is argued that artificial intelligence [AI] technologies can be used in many areas, such as assessing student performance, providing personalized learning experiences, and easing the workload of teachers (Ali et al., 2023; Hakiki et al., 2023; Kasneci et al., 2023; Liu, 2023; Şenyaman, 2023; Zhang et al., 2021).

2. Theoretical Framework

Current literature emphasizes that the reading process is not merely a cognitive receptive activity; it exhibits a multi-layered structure with the components of organization, interpretation, interaction, and self-control. In this context, the relationship between reading attitude and habit/habit and ChatGPT/AI-supported reading is primarily explained through the perspectives of self-regulated learning and reader-response theory (Kurnaz, 2024; Ünsal, 2014; Yaylı, 2010). Self-regulated learning theory emphasizes an individual's skills in goal setting, monitoring, strategy selection, and self-evaluation of performance during the reading process (Arslan & Koç, 2017). AI-based systems, such as ChatGPT, strengthen readers' self-regulatory capacity by explaining unfamiliar concepts, generating questions, summarizing, offering hints, and providing progressive guidance. The literature reports that AI-supported reading has a positive impact on readers' motivation and self-efficacy perceptions by increasing their metacognitive awareness, which in turn positively influence reading attitudes (Al-khresheh & Al Basheer Ben Ali, 2023). Reader-response theory posits that meaning is not inherent in a text; instead, it is formed in conjunction

with the reader's knowledge, emotions, expectations, and interpretive processes (Ateş & Kaya, 2023). In this theoretical framework, AI becomes an interactive component of the co-creation of meaning between the reader and the text. ChatGPT's ability to offer alternative perspectives, fill gaps in the text, and generate personalized feedback by processing the reader's reactions deepens the reader-text interaction. This interaction is considered a mediating mechanism that positively influences the reader's reading attitudes, particularly in texts that require low motivation or high-level interpretation. When these two theoretical stances are combined in the literature, the impact of AI-assisted reading is categorized into three primary elements. Interactional support (reader-text dialogue, individualization), metacognitive support (self-regulation, monitoring, questioning), and cognitive support (facilitating comprehension, reducing workload) (Duman & Arsal, 2015; Urfalı Dadandı & Ungan, 2022). Common findings suggest that these three processes enhance reading attitudes by increasing reader self-efficacy, promoting reading motivation, improving reader-text interaction, and fostering a greater depth of comprehension. In contrast, positive attitudes facilitate the development of reading habits. In conclusion, theoretical and empirical studies indicate that ChatGPT/AI-assisted reading operates through two main theoretical mechanisms. As shown in Figure 1, AI-assisted reading operates through two interconnected pathways: a metacognitive pathway rooted in self-regulated learning processes, and an interactional pathway based on reader–AI dialogue.

Figure 1
Metacognitive and Interactional Pathways in AI-Assisted Reading



It enhances readers' metacognitive skills by supporting self-regulated learning processes. It strengthens reader-text interaction by enriching the reader-response process. These two processes increase reader self-efficacy, depth of comprehension, and reading motivation. Increased motivation and self-efficacy, in turn, positively influence reading attitudes. Ultimately, a positive attitude toward reading fosters the development of sustainable reading habits.

2.1. Reading Attitude and Habit

One factor that affects reading skills is an individual's reading attitude and habits. An individual's positive or negative tendencies towards reading, as well as the frequency of reading, affect their reading skills. In the literature, various factors are identified as affecting reading attitudes and habits, including family status, education level, developmental level, interests, and socioeconomic level (Ustabulut, 2021; Wagner, 2002; Wigfield & Guthrie, 1997). Moreover, the digital revolution has significantly reshaped how students read, write, and access information in school (Imaniah & Zakky, 2021). Reading literature is changing. E-books and audiobooks are digital technologies that complement traditional paper books (Spjeldnæs & Karlsen, 2024). Students can now read on various devices, which may increase reading frequency and diversity in content. It is possible to say that studies using digital tools to improve reading skills have also increased in number (Duran & Topbaşoğlu, 2015; Odabaş et al., 2020). Technology can influence views by offering a variety of

engaging content. For example, research indicates that the integration of AI-supported digital tools into language learning environments increases learner engagement and active participation in text-based tasks, suggesting that students interact more intensively with reading materials in digitally supported contexts (Brown, 2016; Doğan & Talan, 2025). Some students may view screen reading as more valuable than traditional print. Digital textbooks offer readers features not typically found in traditional textbooks. Highlighting text, searching for supplementary content, and text-to-speech audio are all factors contributing to the shift from textbooks to digital books (Chande et al., 2024). Technology makes a wide variety of reading materials more accessible. This accessibility may foster positive attitudes and reading habits. According to recent research, technological advancements have transformed reading practices by enabling individuals to engage with texts in multiple digital formats, and digital tools have become an integral part of daily life for both adults and children (Ajani et al., 2025). Social media and online communities can influence reading habits to encourage reading. Respondents viewed the effects of social media on reading habits positively. According to Rafiq et al. (2019), participants agreed that social media technologies help them stay up to date on study-related projects/assignments, improve their ability to read on screen, provide opportunities for collaborative reading, allow them to exchange reading material quickly and efficiently, and support them in exchanging ideas immediately in group studies. With the digital revolution and the impact of technology, artificial intelligence also plays an important role in this process.

Focusing on the use of AI in reading attitudes and habits (Rodriguez et al., 2022; Zhang et al., 2021), limited research has contributed to understanding individuals' reading motivation, attitudes, and skills. Despite limitations, these studies demonstrate that the impact of AI on reading attitudes and habits is a new and emerging area of research.

2.2. AI in Education

AI has the potential to alter education by making it more effective, engaging, and personalized (Alneyadi et al., 2023). AI has emerged as a driving force in personalizing learning experiences, shifting the paradigm in traditional educational methodologies (Pane et al., 2017). Personalized learning, which enables students to learn at their own pace and in a manner that best suits their learning styles, is one of the primary benefits of AI in education (Shrivastava et al., 2023). Another benefit is that multi-modal data analysis in AI enhances accuracy and reliability in information assessment (Khan et al., 2024). So, it empowers teachers to make informed judgments. Additionally, AI can enhance student engagement by offering dynamic, engaging educational opportunities (Almusaed et al., 2023; Nguyen et al., 2024). Education is undergoing substantial changes owing to the impact of AI, which enhances personalization, efficacy, and engagement. Customized learning experiences are made possible, allowing students to advance at their own pace and according to their preferences. The ability of AI to evaluate multi-modal data supports this move away from traditional teaching approaches, enabling educators to make data-driven decisions. By creating immersive and engaging learning environments, AI increases student engagement.

ChatGPT, an AI language model created by OpenAI, is one of these technologies. ChatGPT is an AI tool capable of processing and producing complicated text. The way people engage with machines has been significantly transformed by ChatGPT, an AI system that responds to user input, opening new avenues for education (Fauzi et al., 2023). Technological developments have profoundly impacted educational processes, transforming classroom learning and teaching methods. Findings indicate that EFL learners value AI tools (including ChatGPT among others) for providing personalized feedback that supports pronunciation clarity as well as lexical and grammatical accuracy, thereby enhancing language-related performance in presentation tasks (Fitriati & Williyan, 2025). Şenyaman (2023) stated that ChatGPT provides feedback, which is one of the most important factors in language learning, as well as personalized support, time- and space-independent guidance, and motivation. Ali et al. (2023) indicated in their study with teachers and students that ChatGPT motivated students to improve their reading and writing

skills. Liu (2023) reported that university students believe ChatGPT is an effective tool for supporting their English language learning. ChatGPT can enhance learning by providing students with high-quality reading resources (Kasneci et al., 2023). This transition relies heavily on artificial intelligence, notably natural language processing [NLP] models. In this light, OpenAI's ChatGPT has emerged as a promising educational tool for the classroom. The potential of AI-driven systems, such as ChatGPT, in education is considerable. Used correctly in the classroom, these tools can benefit many areas, from student support services to personalized learning experiences.

ChatGPT's application areas in education continue to expand, and its impact is growing. ChatGPT can improve learning outcomes by providing comprehensive, up-to-date information that helps students understand complex concepts. Students can support their learning process by receiving instant information about topics they do not understand. By analyzing learners' academic performance and interaction patterns, AI-supported systems can provide personalized learning experiences that enable students to structure course content according to their individual needs and learning priorities (Ajani et al., 2025; Fitriati & Williyan, 2025). It also enables students to learn effectively and helps them better grasp complex concepts. ChatGPT can offer personalized feedback to help students refine their written work. Students can receive suggestions regarding grammar and content by submitting their written assignments (Bettayeb et al., 2024). This helps improve students' written expression skills. ChatGPT can be used in class discussions to expand students' ideas and perspectives. Students can utilize this tool to gain diverse perspectives on discussion topics (Malik & Dahiya, 2024).

2.2. Gaps in Current Research and Study Rationale

Despite the growing interest in AI applications in education, several critical gaps remain in understanding how ChatGPT specifically influences reading attitudes and habits, particularly among middle school students in non-Western contexts. First, most existing studies focus on university-level students or adult learners (Ali et al., 2023; Liu, 2023), leaving younger adolescent populations underexplored. Second, while numerous studies examine AI's impact on reading comprehension or writing skills, fewer investigate the affective and behavioral dimensions of reading—namely, attitudes and habits—which are foundational for developing lifelong reading practices. Third, the majority of research on educational AI is conducted in Western, English-speaking environments, creating a need for culturally and linguistically diverse investigations, particularly in Türkiye, where the integration of digital literacy is still evolving.

Furthermore, the existing literature often lacks methodological rigor in intervention design, as many studies do not provide sufficient detail about how AI tools are implemented in classroom settings, making replication difficult. The duration of most interventions is also limited, and few studies systematically examine even short-term effects using controlled experimental designs. Finally, the potential negative consequences of AI-assisted reading—such as over-reliance, decreased critical engagement, or increased screen fatigue—remain underexamined.

By (1) concentrating on a previously understudied age group (10–11-year-old middle school students), (2) examining both positive and negative aspects of reading attitudes along with behavioral habits, (3) offering thorough documentation of the intervention protocol to facilitate replication, (4) using a mixed-methods approach to capture both measurable outcomes and lived experiences, and (5) conducting the research within the Turkish educational context, this study fills these gaps. While the small sample size (N=26) and short intervention period (four weeks) limit generalizability, this study serves as an important preliminary investigation that can inform larger-scale, longer-term research.

2.3. The Current Research

ChatGPT's ability to parse language enables it to generate messages that are easy to understand and suited to students' levels of understanding. Teachers can use ChatGPT to create high-quality reading materials tailored to their students' needs. Existing research indicates that AI-supported tools have a positive impact on reading skills, attitude, and digital literacy. Here, evaluating

whether traditional reading activities can be replaced by AI-supported applications to help students gain reading attitudes and habits is important. In our research, we will analyze ChatGPT's role in reading attitudes and habits. This study is significant because it offers insight into the role of AI in the reading process. The research is also believed to provide valuable insights and guidance for improving reading skills. To this end, the following questions were addressed:

RQ 1) Is there a statistically significant interaction effect between time (pre-test vs. post-test) and group (experimental vs. control) on students' reading attitudes and reading habits?

RQ 2) How do students perceive ChatGPT's influence on their motivation and engagement in reading?

Research question 1 was addressed to understand the current situation of the participants, to provide a basis for evaluating the impact of ChatGPT, to make a comparison with the control group [CG], to assess whether the change was solely due to ChatGPT, and to see how ChatGPT changes these attitudes and habits towards reading, which is the focus of the overall objective. Research question 2 aimed to understand how students perceive and accept AI technology and to draw inferences about the role of AI in education. With the research questions identified, the aim was to fill the knowledge gap in the literature.

3. Method

3.1. Research Design

The mixed-methods strategy was used in this study. Because quantitative and qualitative data were collected from participants during the research process and then pooled, the researchers used a mixed-methods design. As a design, the sequential explanatory mixed-methods design was employed. The choice of this design was influenced by the fact that the researchers initially collected quantitative data and later qualitative data. Creswell and Plano Clark (2018) defines the sequential exploratory design as a methodology in which qualitative data are collected after quantitative data are collected and analyzed. The use of the Sequential Exploratory Design in this study stems from the need to conduct both comprehensive quantitative analysis and collect qualitative data to provide an in-depth understanding of these findings. This design is suitable for determining both the general trends of changes in students' reading attitudes after using ChatGPT and for understanding the reasons behind these changes, as well as students' experiences.

Given the characteristic features of the sequential explanatory mixed-methods design, this design was adopted (Baki & Gökçek, 2012). Quantitative data were collected and analyzed first to examine the impact of the ChatGPT-supported intervention. Subsequently, qualitative focus group interviews were conducted to explain and elaborate on the quantitative findings."

3.2. Participants

The research group in this study consisted of 26 students aged 10-11 years, attending 6th grade at a middle school in Türkiye. The sample group was formed using convenience sampling, with participation in the research process voluntary. As a result, 13 students indicated their willingness to participate in the research, and a research group (the Experimental group) was formed. In addition, a CG of 13 students was formed to check whether the AI-SRM [artificial intelligence-supported (ChatGPT) story/tale reading model] designed by the researchers was effective. A straightforward random sampling technique was employed to establish the CG. A priori power analysis was performed with the assumptions of an effect size (Cohen's d) = 0.80, α = 0.05, and a two-sided test for the independent-samples t-test. With a sample size of N = 26, statistical power was calculated as 1-β = 0.80, which meets the minimum power level accepted in the literature (Cohen, 1988). Participation in the practice process was the main criterion in selecting the students to be interviewed. All students in the experimental group [EG] were included in the focus interviews. Although the sample size was smaller than ideal, the study design followed a pilot-experimental logic, yielding preliminary insights into ChatGPT-assisted reading instruction. Future studies with larger samples are recommended to confirm the observed trends.

3.3. Data Collection Tools

The research process involved using two different data collection tools. These were used to gather quantitative and qualitative information. The scales' validity, reliability, and suitability for the target audience were decisive in their selection.

3.3.1. Attitude and Habit Scale towards Reading

The data collection tool used in the research is the *Attitude and Habit Scale towards Reading* developed by Gül Özdil and Demir (2020) for secondary school students. This 5-point Likert-type scale was applied to both the EG and CG. The scale comprises 19 items, 9 of which are reverse-coded. The scale measures two subdimensions: 1) Positive Reading Attitude and Habit (10 items) — evaluates students' affective and motivational tendencies toward reading (e.g., "I feel happy when I read a book."), and 2) Negative Reading Attitude and Habit (9 items) — assesses students' frequency and persistence in reading-related behaviors (e.g., "I prefer spending time on social media rather than reading books.").

According to Cronbach's Alpha, Spearman-Brown, and Guttman Split-Half values, the internal consistency coefficients for the entire scale and its sub-dimensions were all greater than 0.70. The overall Cronbach Alpha is .89, Spearman Brown is .89, and Guttman Split-Half is .82. The developers reported high internal consistency for the total scale (Cronbach's α = .89) and for its subscales (α = .85 for Attitude, α = .82 for Habit). In this study, Cronbach's α values were recalculated and found to be .87 for the overall scale, indicating good reliability.

The scale was used both as a pre-test and a post-test for the EG (ChatGPT-integrated) and CG. Item statements were linguistically reviewed by two experts in reading education and the integration of AI for contextual relevance. No adaptation or translation was required, as the instrument was developed in Turkish.

3.3.2. Digital Literacy Scale

This scale, developed by Pala and Başıbüyük (2020), assesses students' digital literacy levels aged 10-12. Consisting of 21 items on a 5-point Likert-type scale, this scale assessed four dimensions: information processing, communication, security, and problem-solving. It was administered to both experimental and control groups during the basic equivalence check phase. The scale's reliability was evaluated using test-retest and Cronbach's Alpha analyses. The test-retest study yielded a correlation coefficient of .72 and a Cronbach's alpha of .877.

3.3.3. Focus group interview form (FGIF)

The study team created a semi-structured FGIF for the qualitative component. The form included four open-ended questions designed to elicit students' experiences, perceptions, and challenges during the reading process, supported by ChatGPT.

Expert opinions were obtained from two field specialists (one in reading pedagogy, one in AI applications in education) to ensure content validity and clarity. The pilot application confirmed that the average interview duration (≈approximately 20 minutes) was suitable for middle school participants.

3.4. Baseline Equivalence Check

A baseline equivalence check was conducted to identify potential differences between the groups. This included comparing the groups on baseline variables from pre-intervention measurements. Appropriate parametric or non-parametric tests were used for independent groups, depending on the data's distributional characteristics.

Table 1 presents the pretest comparisons between the experimental group and control group regarding reading attitudes, reading habits, and digital literacy scores prior to the AI-SRM implementation. Independent samples *t*-test results indicate that there were no statistically significant differences between the groups in any of the measured variables ($p > .05$). This suggests that the groups were comparable at baseline.

Table 1
Significance between EG and CG Students' Attitudes and Habits Towards Reading and Digital Literacy Pre AI-SRM Practice

Groups	*N*	*Mean*	*SD*	*Std. Error Mean*	*t*	*p*
Pre-Test Positive Extent						
Experiment	13	26.62	9.92	2.75	−.047	.963
Control	13	26.77	6.22	1.73		
Pre-Test Negative Extent						
Experiment	13	33.54	5.80	1.61	.364	.719
Control	13	32.62	7.07	1.96		
Pre-Test Total Score						
Experiment	13	61.69	12.78	3.54	.481	.635
Control	13	59.38	11.66	3.23		
Digital Literacy Score						
Experiment	13	78.15	11.22	3.11	1.565	.133
Control	13	72.30	7.44	2.06		

The pre-test results did not differ significantly between the groups, indicating that the experimental and control groups were comparable prior to the intervention. This suggests that the random assignment was successful and that potential confounding variables were minimized. Establishing baseline equivalence strengthens the internal validity of the study and allows for a clearer interpretation of the effects of the subsequent intervention. The results demonstrate whether the groups had similar baseline characteristics before the intervention and form the basis for the internal validity of subsequent analyses.

3.5. Data Analysis

The quantitative data were examined with SPSS Statistics 29 (IBM). Before conducting the primary analyses, the assumptions of normality, homogeneity of variance, and sphericity were examined. To determine reading habits, mean scores were calculated. The pretest-posttest mean scores of both groups were compared within and between the groups. Homogeneity of variances across groups was assessed with Levene's test. For the repeated-measures GLM, Mauchly's test of sphericity was used, and when violated, the Greenhouse–Geisser correction was applied. In addition, effect sizes were expressed as partial eta squared (η^2) for ANOVA/GLM results and Cohen's d for pairwise comparisons.

The qualitative data were analyzed through thematic content analysis using MaxQDA 22.3.0. Transcripts were first read multiple times to achieve data immersion, and initial codes were generated inductively from participants' statements. These codes were then clustered into subthemes and central themes that represented common perceptions of the ChatGPT-supported reading process. Two researchers independently coded all interview data. Until a consensus was reached, coding inconsistencies were examined. To assess inter-coder reliability, Cohen's κ was calculated as .87, indicating strong agreement (Miles et al., 2014). The qualitative aspect of the research was addressed in terms of validity and reliability, credibility, transferability, and confirmability (Houser, 2015; Merriam, 2013). For credibility, the problem situation in the literature was presented in line with the sub-problems. In addition, macro analyses were first performed on the interview data, and the data were then rearranged for micro analyses, which were conducted after the macro analyses. Finally, the findings were presented by comparing them with the relevant literature. For transferability, the quotations obtained during data analysis were presented in concrete terms, allowing the same results to be reproduced when desired. The credibility of qualitative findings was enhanced through member checking and peer debriefing. Participants reviewed summaries of their responses to confirm accuracy. For transferability, rich quotations were provided to enable readers to assess the contextual relevance of the findings. Dependability was supported by maintaining a clear audit trail of coding steps in MaxQDA, while confirmability was ensured through reflective memos documenting analytic decisions.

Combining quantitative and qualitative results occurred during the interpretation and discussion stage. Quantitative results regarding changes in reading attitudes and habits (RQ1) were juxtaposed with qualitative themes derived from student interviews (RQ2). Convergences, divergences, and complementarities between the two strands were systematically examined to build a more comprehensive understanding of how ChatGPT-supported reading activities influenced students' attitudes and habits toward reading.

Table 2
Strategy Followed Specifically for Hypotheses

Research Questions	*Test Conducted*	*Variables Involved*	*Purpose*
-	Independent samples *t*-test	Pre-test scores (TG vs. CG)	Baseline equivalence
RQ1	Independent samples *t*-test	Post-test scores (TG vs. CG)	The main effect of ChatGPT
RQ1	2×2 mixed-design GLM (time × group)	Pre-/post-test scores of reading attitude & habit	Interaction effect
RQ2	Thematic content analysis	Interview transcripts	Qualitative triangulation

3.6. Research Process

The AI-supported model, which guides the research's experimental process, was developed within a theoretical framework. AI-supported modeling is closely tied to educational psychology and various learning theories. The disciplines of educational psychology, social cognitive learning theory, intrinsic motivation theory, and self-efficacy theory were combined to support individuals' reading habits and foster positive attitudes toward reading by applying their principles. AI algorithms, including personalized recommendations, adaptive learning, interactive learning experiences, behavioral analysis, and automated evaluation, supported this relationship.

3.6.1. Pre-intervention procedures

A pre-test was administered after obtaining ethical permission and parental consent.

3.6.2. Description of the AI-SRM intervention (Detailed Protocol)

The Artificial Intelligence-Supported Reading Model AI-SRM] was implemented over four weeks (eight 40-minute sessions, twice weekly). The intervention was designed to integrate ChatGPT as a personalized reading support tool while maintaining teacher facilitation and pedagogical oversight. Below is a detailed, session-by-session breakdown to ensure transparency and replicability.

3.6.3. Pre-Intervention Preparation (Week 0)

Teacher Training: The classroom teacher attended a 6-hour professional development workshop covering ChatGPT fundamentals and prompt engineering techniques. Strategies for generating age-appropriate Turkish texts. Monitoring student-AI interactions and providing scaffolding. Technical troubleshooting and managing AI limitations

Student Orientation: All experimental group students participated in a 40-minute orientation session: Introduction to ChatGPT: "What is AI? What can and cannot ChatGPT do?" Digital citizenship and responsible AI use. Demonstration of the AI-SRM workflow (see Figure 2). Practice session: students generated one short story collaboratively

Technical Setup: Each student was assigned a supervised ChatGPT account (via school computers) with pre-configured safety settings.

3.6.4. Intervention structure (Weeks 1-4)

Each session followed a standardized protocol:

Phase 1: Value Selection and Theme Introduction (5 min). Students selected one of 10 root values aligned with the Ministry of National Education curriculum's character education goals: responsibility, honesty, respect, cooperation, patience, justice, love, diligence, cleanliness, and patriotism. The teacher facilitated a brief class discussion on the chosen value's meaning and real-life applications. Students could not repeat the same value across sessions, encouraging exploration of diverse themes.

Phase 2: ChatGPT-Assisted Story Generation (15 min). Students individually accessed ChatGPT on school computers and used a standardized prompt template (provided as a printed card):

Example Prompt (Week 1, Session 1):

Translation: ChatGPT, please write me a story about [Chosen value, e.g., honesty], appropriate for Turkish culture, suitable for 10-11-year-old children, approximately 300 words. The story can take place in a village or small town and should have a meaningful lesson at the end.

Students could refine prompts based on their interests (e.g., requesting specific settings, characters, or plot elements) after initial generation. The teacher circulated to assist with technical issues and prompt refinement.

Phase 3: Independent Reading and Annotation (10 min). Students read their personalized ChatGPT-generated story silently. They highlighted unfamiliar vocabulary and noted interesting phrases on a reading log worksheet. If comprehension issues arose, students could ask ChatGPT follow-up questions (e.g., "Bu kelime ne anlama geliyor?" / "What does this word mean?").

Phase 4: Post-Reading Reflection (10 min). Students completed a structured Reading Follow-Up Form (not analyzed in this study but used for engagement monitoring) that included a story summary (2-3 sentences). Personal connection: How does this value relate to your life? Evaluation: What did you like/dislike about the story? Vocabulary log: 3 new words learned. The teacher reviewed forms to monitor engagement and provide individualized feedback in the next session.

3.6.5. Teacher's facilitative role

The teacher did not lecture or directly teach reading strategies. Instead, the teacher monitored ChatGPT outputs for appropriateness (no instances of inappropriate content occurred). Assisted students with technical difficulties (e.g., login issues, prompt errors). Encouraged students to critically evaluate AI-generated stories (e.g., Does this story make sense? Are the characters realistic?). Provided motivational feedback on students' reading logs. Did not intervene in students' reading process or story selection unless safety concerns arose.

3.6.6. Control Group Activities

To ensure equivalence in instructional time, the control group engaged in traditional reading activities for the same duration (40 minutes, twice weekly, 4 weeks): Teacher-led reading of age-appropriate Turkish stories from approved textbooks and children's literature anthologies. Vocabulary instruction and discussion of story themes. Written comprehension questions and group discussions. Independent silent reading from the classroom library books. Key Difference: Control group students read pre-selected, static texts without AI support, personalization, or interactive questioning features.

3.6.7. Implementation Fidelity Measures

To ensure consistent delivery of the AI-SRM intervention, the teacher maintained a session log documenting adherence to the protocol (8/8 sessions completed as planned). Random session observations by a research team member confirmed protocol compliance (3 sessions observed). Students' ChatGPT interaction histories were reviewed to verify engagement (all 13 students completed all 8 sessions). No deviations from the protocol occurred.

Figure 2
AI-SRM Process Diagram

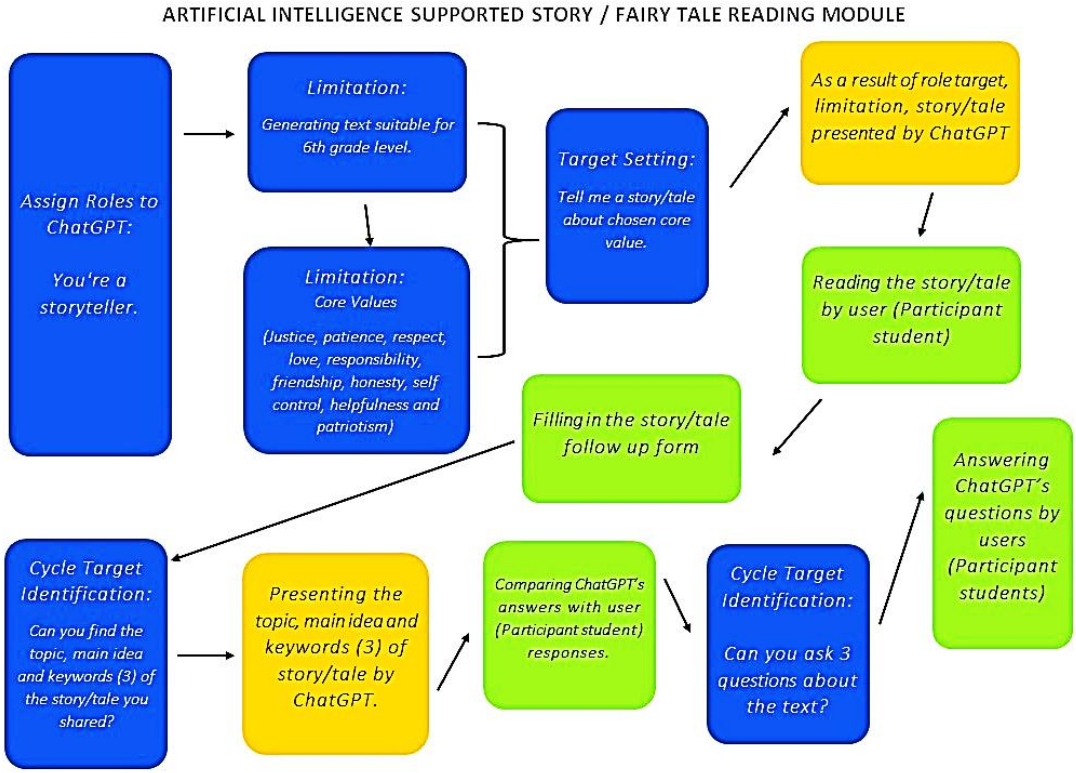


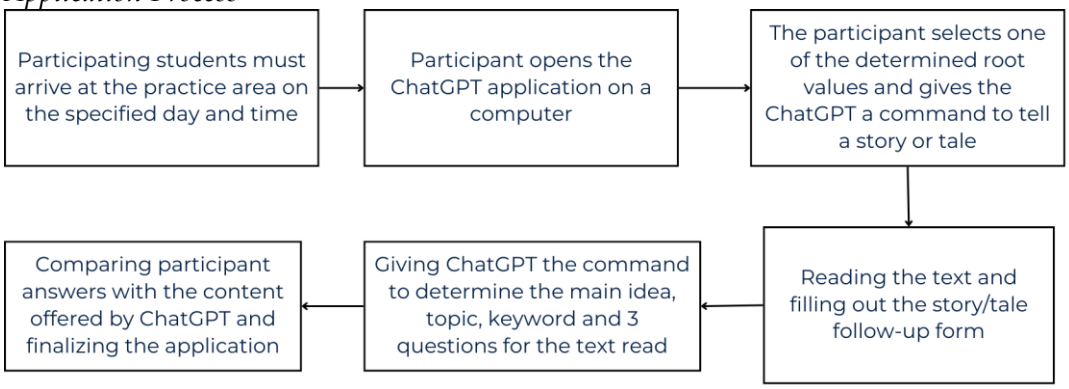
Figure 2 shows the sequence of steps followed during implementation. The colors in the figure illustrate the actions taken by different role players. Blue represents actions performed by the ChatGPT application when the user commands the ChatGPT AI system. Green represents actions performed by the user.

Following the pilot implementation, a group interview was conducted with all 6th-grade students at the school where the implementation would take place, and the research outline was presented to them. The students in the EG were introduced to the research team's "Artificial Intelligence (ChatGPT)-Assisted Story/Tale Reading Modeling" technique, and it was explained to them.

3.6.8. Application Order

This four-week (8-session) study sought to ascertain how middle school students' views and reading habits were affected by the AI application ChatGPT. During these four weeks (8 sessions), the application was conducted with individual participants. Participants were asked to select one of the root values and follow the modeling process sequence through ChatGPT. Participants were careful not to select the same root value in subsequent applications. After reading through ChatGPT, participants were requested to complete a reading follow-up form for each story or tale. However, the data obtained from these forms was not evaluated in any way. The application process was concluded after these procedures. In the control group, traditional reading activities continued at the same duration and frequency as the regular curriculum. The intervention aimed to make reading more enjoyable and motivating by combining personalized content, interactive engagement, and timely feedback. Throughout the process, the teacher played a facilitating role, ensuring that the interaction with ChatGPT remained pedagogically meaningful and aligned with curricular goals. A diagram illustrating the steps performed during the application is shared in Figure 3.

Figure 3
Application Process



3.6.7. After Application

At this stage, the data collection tool was administered to the participating students. The data from the *Attitude and Habit Scale towards Reading* served as the study's final test. The second data collection tool was the FIF, which aimed to identify participants' opinions regarding the *Artificial Intelligence (ChatGPT)-Supported Story/Tale Reading Modeling* application. At this point, a researcher from the research team conducted and recorded individual focus interviews with 13 participating students. After transcribing the audio recordings, the thematic distribution of participants' opinions was analyzed using MaxQDA. Following these post-application procedures, the findings obtained during the research process were reported.

4. Findings

4.1. Statistical Significance Levels of Groups' Reading Attitudes and Habits Scores Before and After AI-SRM Application

Table 3 shows the findings for the study's first sub-problem. The normality analysis conducted to assess the distribution of pre-test and post-test measurements across groups indicates that the skewness and kurtosis of the mean scores fall within the ranges of 0.616-1.191. Hence, it was accepted that the distribution provided normality (Byrne, 2010), and the posttest averages of the groups were compared using parametric analysis to determine the effect of the experimental procedure.

Table 3
Statistical Significance of the Groups' Attitude towards Reading and Habit Scores Pre and Post-AI-SRM Practice

Groups	*N*	*Mean*	*SD*	*Std. Error Mean*	*t*	*p*	*Effect size*
Post Test Positive							
Experiment	13	71	8.04	2.23033	3.919	.001	1.537
Control	13	54	14.08	3.90430			
Post Test Negative							
Experiment	13	71	8.04	2.23	2.754	.015	1.080
Control	13	54	14.08	3.90			
Post Test Total							
Experiment	13	71	8.04	2.23	3.781	.001	1.483
Control	13	54	14.07	3.90			

Table 3 displays the results of the analyses of the attitudes and habits scores toward reading obtained from the scales applied to the EG and CG after the AI-SRM. The post-test total scores and pre-test positive and negative dimension scores of the groups differ significantly in favor of the EG (t = 3.781, p < .05; t = 3.919, p < .05; t = 2.754, p < .05), according to the results of the independent samples group t-test used to determine the differentiation of the groups' attitudes and habits

toward reading after the application. The impact on the groups' pre-test positive and negative dimension scores, as well as their post-test total scores, was significant (d > 0.8) when Cohen's d was used to assess effect size. Cohen's d values indicate a significant effect (d > 0.8), suggesting that the practical significance of AI-SRM is high and that the results are not only statistically significant but also meaningful in the real world.

A general linear model [GLM] repeated-measures analysis was selected, as the principal goal of the research was to compare the treatment and comparison groups' pre-instruction and post-instruction results to assess the effects of the intervention. GLM allows for the interaction between time (pre- and post-instruction) and condition (treatment-comparison), making it ideal for determining how group differences change over time. Repeated-measures analysis allows for the precise assessment of changes over time when the same participants are measured at multiple time points. This provides a clearer picture of the intervention's effect on reading habits in the treatment group (Gravetter et al., 2021). GLM repeated-measures tests the assumption of sphericity to determine whether variances across measurements are comparable. If this assumption is not met, results can be presented using Huynh-Feldt or Greenhouse-Geisser corrections. This technique is frequently used, particularly in educational and psychological research, to assess the performance of a study group before and after a training or intervention program (Tabachnick & Fidell, 2019). Using effect size measures, such as partial eta squared (η^2), allows assessment of the intervention's effectiveness.

Table 4 presents the results of the GLM repeated-measures analysis for the positive, negative, and total ratings of reading attitudes and habits. This analysis examined both the main effect of time and the interaction between time and condition.

Table 4
GLM Repeated Measures Results

Dimensions and Source	*Type III Sum of Squares*	*df*	*Mean Square*	*F*	*p*	*Partial η^2*
Positive						
Time (pre-instruction-post-test)	114.019	1	114.019	4.650	.041	.162
Time*condition (treatment-comparison) interaction	320.019	1	320.019	13.052	.001	.352
Error	588.462	24	24.519			
Negative						
Time (pre-instruction-post-test)	.308	1	.308	.013	.911	.001
Time*condition (treatment-comparison) interaction	135.692	1	135.692	5.596	.026	.189
Error	582.000	24	24.250			
Total						
Time (pre-instruction-post-test)	50.019	1	50.019	.857	.364	.034
Time*condition (treatment-comparison) interaction	701.558	1	701.558	12.019	.002	.334
Error	1400.923	24	58.372			

The results of the repeated measures GLM analysis are summarized in the table. The time effect on positive attitude ratings was significant: $F(1.24) = 4.65$, $p = .041$, $\eta^2p = 0.162$, power = 0.58. The time*group engagement was also important: $F(1.24)=13.05$, $p < .01$, $\eta^2p = 0.352$, observed power = 0.95. The treatment group's positive attitude ratings increased significantly from pre-instruction to post-instruction, whereas the comparison group showed no statistically significant change.

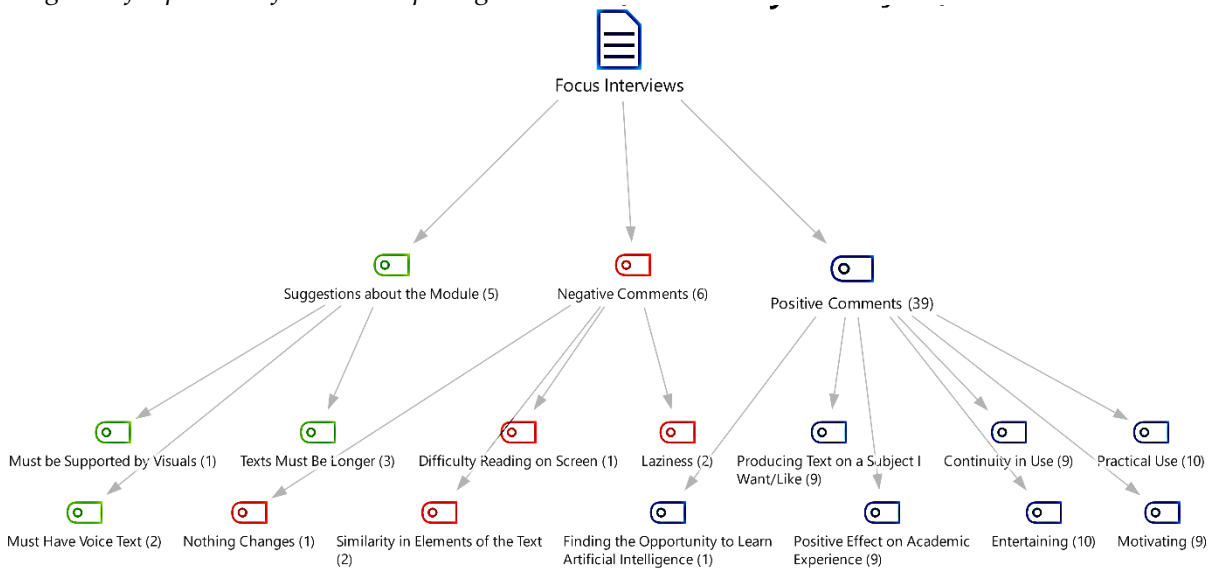
In the GLM analysis for negative attitude ratings, the time × group engagement interaction was significant: $F(1.24) = 5.60$, $p = 0.026$, $\eta^2p = 0.189$, with a power of 0.66. In this engagement, the negative attitude rating increased from pre-instruction ($M = 33.54$) to post-instruction ($M = 36.62$) in the treatment group (EG). At the same time, a decrease was observed in the comparison group (CG). Neither the time effect ($F(1.24)=0.01$, $p = .911$) nor the main group effect ($F(1.24) = 0.03$, $p = .874$) were found to be important. The engagement effect found for the negative attitude was

medium-sized ($\eta^2p \approx 0.19$). In the GLM analysis for total ratings, the time × group engagement interaction was significant: $F(1.\ 24) = 12.02$, $p < .01$, $\eta^2p = 0.334$, power = 0.91. In this engagement, the total rating in the treatment group (EG) increased from pre-instruction ($M = 61.69$) to post-instruction ($M = 71.00$), whereas the comparison group showed a decline. Neither the time effect ($F(1.24) = 0.034$, $p = .364$) nor the group main effect ($F(1.24) = 0.03$, $p = .874$) were found important. The engagement effect detected in the total rating was strong ($\eta^2p \approx 0.334$). The AI-based training in the treatment group significantly increased students' total reading habit ratings. In the comparison group, a decrease over time was observed. This finding demonstrates the potential impact of the intervention. Partial η^2 values indicate that, relative to the total variance, AI-supported sessions explained 35.2% of the effect on positive attitudes and habits, 18.9% of the effect on negative attitudes and habits, and 33.4% of the total effect. These findings suggest that the intervention, which positively impacted reading attitudes in the treatment group, was effective. RQ1 is confirmed in Tables 3 and 4.

4.2. Participating Students' Opinions on the AI-SRM Application

The findings obtained for the second sub-problem of the research are presented in Figure 4.

Figure 4
Diagram of Opinions of the Participating Students towards AI-SRM Practice



In Figure 4, the opinions of the students involved in the AI-SRM practice are shown thematically. It was observed that the opinions were categorized into three groups: suggestions, positive opinions, and negative opinions about the module.

The positive opinions are grouped under the themes of being fun, providing practical use, having a positive impact on academic life, producing texts on subjects one enjoys, ensuring continuity in use, motivating, and offering the opportunity to become familiar with AI. The final thematic structure consisted of three overarching themes and seven subthemes. Students' statements generally reflected positive attitudes toward ChatGPT-supported reading activities, emphasizing motivation and personalization. However, some students expressed concerns about over-reliance on AI and limited clarity in language. These mixed perceptions illustrate both the potential and limitations of integrating ChatGPT into reading instruction.

Regarding the theme of fun, participant AG said, "It was fun for me to read something with ChatGPT using the internet." Participant CD, who was interested in the practical use of the module, said, "When I do not have a book in my school bag or with me, I can read something using ChatGPT." Participant MK commented, "There is no limitation in terms of books. You can find texts on any subject you want." He touched on the theme of producing texts on the subject he wants.

The negative opinions reveal a unified theme, highlighting similarities in the text: laziness, a lack of innovation, and difficulty reading on a screen.

Participant DG stated:

> I think it is not good that the characters in the stories I read using ChatGPT are always the same and have the same names. I think the fact that the stories are usually set in a village or a small town is a negative point.

He expressed his negative opinion about the AI-supported module. Participant CÇ thought that the module accustomed individuals to laziness, "If we use it too much, it seems we will be lazy. I think I will use it while doing research or homework." Participant BN, who found the module's effect on her limited, expressed this view by saying, "It was nice to use ChatGPT from the computer, but I also like reading normal books."

Regarding the module's suggestions, opinions are united on two key themes: the texts should be expanded, and audio and visual support should be provided. Participant AG stated, "The stories I read with ChatGPT could have been longer. On the other hand, about supporting the texts with audio and visuals," Participant CD stated, "It would have been better if the stories were audio." In contrast, participant BŞ replied, "There could have been pictures in the stories written by ChatGPT." The findings obtained from this study's second sub-problem confirmed the study's second hypothesis.

4.3. Integration of Quantitative and Qualitative Findings (Joint Narrative)

The quantitative analyses revealed that the EG, which used ChatGPT-supported reading activities, showed a more pronounced improvement in reading attitudes and habits than the control group. The interaction effect between time and group suggested that the improvement observed in the EG was associated with the integration of ChatGPT into the reading process. This implies that AI-supported tools may contribute meaningfully to students' reading motivation and habits.

The qualitative data supported and enriched these statistical findings. Students reported that ChatGPT increased their motivation to read by making texts more understandable, offering instant explanations, and providing personalized guidance. Many students stated that they engaged more deeply with reading materials because ChatGPT reduced the difficulty of unfamiliar vocabulary and helped them clarify complex ideas. These experiences align with the quantitative improvements observed in attitudes and habits.

A key point of convergence between the two data sets is the positive influence of ChatGPT on reading motivation. While the quantitative findings showed an increase in attitude scores, students' statements explained why: ChatGPT made reading more accessible, reduced anxiety, and offered interactive support. Another area of alignment is the development of reading habits. Students noted that using ChatGPT encouraged them to read more frequently, as reflected in the statistical increase in their reading habit scores.

There were also complementary insights. The quantitative data confirmed the intervention's effectiveness, while the qualitative findings revealed the mechanisms behind this change—particularly students' increased confidence, enjoyment, and autonomy during the reading process. The qualitative reflections also highlighted ChatGPT's role as a "learning companion," which helped maintain engagement over time.

ChatGPT not only supports comprehension but also reshapes the reading experience by increasing motivation, promoting consistent reading behaviors, and providing individualized assistance. This integrated understanding supports the conclusion that ChatGPT can be a beneficial tool for developing students' reading attitudes and habits.

5. Discussion

This study provides preliminary evidence that short-term, ChatGPT-assisted reading activities may influence middle school students' reading attitudes and habits. However, the findings reveal a complex, nuanced picture that includes both promising benefits and concerning trade-offs. Below, we interpret the results in light of existing literature, address unexpected findings, acknowledge alternative explanations, and discuss theoretical and practical implications.

The study's first finding reveals that the reading attitudes and habits of the EG students are higher than those of the CG. It can be concluded that students generally have a positive attitude towards reading. Biçer and Duruhan (2024), in their research investigating the relationship between secondary school students' learning styles and their attitudes towards reading, similarly found that students had positive attitudes towards reading. Research examining the reading attitudes of secondary school students has shown that positive attitude scores reflect favorable dispositions toward reading, and that increases in reading attitudes across grade levels are both expected and educationally desirable (Guthrie & Wigfield, 2000).

As another finding of the study, the scores on attitudes and habits toward reading differed significantly in favor of the EG. In a study in which primary school students wrote digital stories using AI, all students reported a positive perception of the learning process and achieved a higher level of cognitive development (Ng et al., 2022). In a study of university students in EG and CG, ChatGPT was found to enhance students' active participation in the learning process by providing an interactive, individualized learning experience (Hakiki et al., 2023). A study in which students both created and illustrated stories using AI stated that students' logic, creativity, presentation, and drawing skills improved (Zhang et al., 2021). A study by Kaşkaya and Ateş (2025) indicated that AI-supported applications enhance creativity, writing skills, and learner engagement. The findings showed that AI tools can model creative story production and support individuals who experience difficulties in writing by scaffolding idea generation and text development (Kaşkaya & Ateş, 2025). Based on both our study's findings and the literature, it has been concluded that AI technologies will be helpful across many aspects of language learning. It is well established that the effects of short-term interventions, as measured by their application period in experimental studies, may be temporary and may not capture long-term effects (Cook & Campbell, 1979). A 4-week (8 sessions) application period may not be sufficient to observe long-term effects. A more extended application period may reveal more permanent changes in students' reading habits and attitudes. However, despite the limited sample and application period, the study provides critical preliminary findings regarding the potential effect of ChatGPT on reading attitudes. Future studies can be conducted with larger sample sizes and more extended application periods to examine the generalizability and long-term effects of the findings.

Several alternative explanations that could account for the observed effects and limit causal inference pose threats to internal validity. It is possible that students in the experimental group were motivated by the excitement of using a cutting-edge tool rather than by the inherent pedagogical value of ChatGPT itself. This phenomenon, often referred to as the novelty effect, is well documented in educational technology research (Clark, 1983; Sung et al., 2016). Furthermore, it is argued that if the effect is primarily novelty-driven, it may dissipate over time, making the observed improvements unsustainable. The fact that the experimental group students knew they were part of a special study and received close attention from researchers may have influenced their performance and attitudes through a Hawthorne effect (Wickström & Bendix, 2000), while the control group, receiving standard instruction, may have felt less valued. Additionally, it is emphasized that, because the experimental group participants were volunteers, they may represent students with a higher pre-existing interest in technology or reading. Although baseline scores did not differ significantly, unmeasured variables may have predisposed this group to respond positively to the intervention. Therefore, the need for future randomized controlled trials is highlighted. Finally, it should be remembered that the teacher implementing the intervention, while aware of the study's objectives, may have unconsciously conveyed enthusiasm or higher expectations to the students in the experimental group (Rosenthal & Jacobson, 1968).

Another unexpected finding in the study was the decline in positive reading attitudes in the control group, raising the question of whether the experimental group actually improved or whether the control group deteriorated. Three possible factors can explain this decline in the control group. It may be a maturation effect (Cook & Campbell, 1979) of mid-term motivation declines commonly seen in educational settings; the control group students' engagement with routine reading activities may have felt monotonous compared to the experimental group's

apparent interaction with new technology, potentially leading to jealousy or loss of motivation; and the fact that the data were collected in late spring (May-June), when student participation typically decreases, may constitute a seasonal factor. This decline complicates the interpretation of the intervention effect. Although a significant interaction effect between time and group shows that the experimental group's trajectory differed from that of the control group, it cannot be definitively determined whether this is solely due to the benefits of ChatGPT or to the decline in the control group. It is suggested that future studies include an active control condition to isolate the specific effects of ChatGPT.

The study's findings show an unexpected, statistically significant increase in negative reading attitudes in the experimental group. This result can be interpreted from five different perspectives: intensive screen use may have created a media displacement effect (Spjeldnæs & Karlsen, 2024), shifting students' media preferences to digital formats and making traditional printed books less attractive; students may have developed an aversion to unassisted reading by becoming accustomed to the less effort required by AI-assisted reading, as documented in research on calculator use in mathematics education (Cheung & Slavin, 2013); the known limitations of language models (Kasneci et al., 2023) in ChatGPT may have fostered a critical attitude due to the reduction in the novelty effect (Sung et al., 2016) of repetitive and formulaic story structures; and this increase may be a positive indicator that students have begun to evaluate digital content in a more sophisticated way. Finally, despite the possibility of response bias from reverse-coded items, the simultaneous increase in positive attitudes suggests that this is not merely measurement error.

The last finding of the research was that the opinions were grouped under three categories. Students expressed positive opinions about ChatGPT, including that it is fun and practical to use, has a positive impact on lessons, produces text on the desired subject, motivates students, and provides an opportunity to use AI. Similarly, Fitriati and Williyan (2025) reported that learners expressed increased engagement and more positive attitudes toward writing tasks when supported by AI-assisted tools. In the study by Kaşkaya and Ateş (2025), participants reported that AI-supported educational tools enhanced their engagement with English learning tasks, suggesting that interactive technologies can be valuable for supporting language comprehension and learner autonomy. Broader bibliometric evidence also indicates that artificial intelligence applications are increasingly integrated into foreign language learning contexts, highlighting trends in AI-enhanced language pedagogy (Doğan & Talan, 2025). Furthermore, adaptive technologies and digital tools have been shown to support learners' self-regulated learning processes in language tasks (Fitriati & Williyan, 2025). In lessons conducted with 110 students in 4th to 6th grade using ChatGPT, most students enjoyed learning the AI-generated materials. Using AI in lessons motivated students to learn and support their skill development (Jauhiainen & Guerra, 2023). Students expressed negative opinions about ChatGPT, including concerns about text similarity, laziness, and difficulty reading from the screen. To eliminate textual similarity or to provide texts suitable for a specific level, the commands given to ChatGPT should be more precise and targeted. Similar to the concept of laziness obtained from the opinions, in a study conducted with university students, the negative aspects of AI were also mentioned by expressing the opinion, "I am afraid that people will get used to using ChatGPT and lose their basic writing skills" (Kostka & Toncelli, 2023). In addition to formal factors, such as the screen and font size and shape, it is also believed that there is a mental aspect to negative opinions about reading on a screen. In screen reading, the reader's eye and mind must follow the screen's directions to receive the information presented through the screen window. This situation shapes the reader's perception, comprehension, and mental structuring. The students also suggested extending the texts and providing audio and visual support to accompany them. To make full use of ChatGPT, teachers and students should learn to use it more efficiently. When comparing the learning environment with the pre-AI, it is clear that AI will change and reshape reading experiences. However, it should not be forgotten that AI will not completely replace our traditional education system. Given students' negative evaluations, AI and other technology-based applications should be integrated into the traditional study process.

According to our research, students' reading attitudes improved when AI technologies, such as ChatGPT, were used in the classroom. Students stated that they enjoyed the applications carried out with ChatGPT and actively participated in the learning process. Although they were not designed directly as a reading intervention program, some studies have been determined to support reading skills with features such as text summarization and question answering (Cheung & Slavin, 2013; Lysenko & Abrami, 2014; Ponce et al., 2013; Saine et al., 2011) similar studies in the literature support these findings and state that AI, chatbots, technologies computer-based learning environments facilitate the learning process, increase students' motivation and improve their cognitive skills (Chassignol et al., 2018; Chen et al., 2020; Kim, 2019; Liu et al., 2022; Smutny & Schreiberova, 2020; Xu et al., 2019; Xu et al., 2021).

However, some students' negative opinions should also be taken into consideration. In particular, students have concerns about the similarity of texts, the feeling of laziness, and the difficulty of reading on screens. At these points, it is essential to consider that students may require additional guidance to utilize AI technologies more effectively and efficiently. Integrating both data strands, it can be inferred that ChatGPT primarily enhances the affective and behavioral dimensions of reading, rather than purely cognitive comprehension. Its potential lies in augmenting reading motivation rather than replacing traditional literacy instruction. Therefore, future implementations should strike a balance between AI-supported and teacher-guided reading tasks to prevent dependency and maintain critical literacy skills.

Finally, the study's limited sample size restricts generalizability; however, the mixed-methods approach provides preliminary evidence of how AI technologies can meaningfully support literacy development. Future research with larger and more diverse populations should examine long-term behavioral outcomes and explore how different AI interaction modes (e.g., dialogue-based vs. text-generation) affect students' reading behaviors.

6. Conclusions and Implications

This study provides preliminary evidence that ChatGPT can enhance short-term reading motivation among Turkish middle school students; however, it also reveals potential risks, including increased negative attitudes toward traditional reading and concerns about overreliance. The findings challenge simplistic "technology as solution" narratives, demonstrating that AI integration requires careful design, teacher facilitation, and attention to unintended consequences.

Importantly, this study does not address whether ChatGPT enhances reading comprehension, promotes long-term habits, or benefits diverse learner populations. It provides an initial proof of concept, highlighting both the promise and pitfalls. Future research with rigorous experimental designs, larger samples, longer durations, and comprehensive outcome measures is essential before recommending widespread adoption of ChatGPT in reading instruction.

Ultimately, the question is not "Can ChatGPT make reading enjoyable?" but "Under what conditions, for which students, and with what safeguards can ChatGPT support meaningful reading engagement without displacing critical literacy practices?" Answering this question will require a sustained, multi-method investigation.

Moreover, the decline in positive attitudes among the control group raises questions about whether the experimental group genuinely improved or whether the control group experienced motivational slumps unrelated to ChatGPT's absence. The study's small sample size (N = 26), short duration (4 weeks), quasi-experimental design, and potential confounding variables (self-selection bias, novelty effect, Hawthorne effect) further limit the causal inference.

These limitations notwithstanding, the study makes several contributions:

1. It provides early empirical evidence on ChatGPT's effects in a previously underexplored population (10-11-year-old Turkish students). 2. It employs a mixed-methods approach, triangulating quantitative outcomes with qualitative student experiences. 3. It documents a detailed, replicable intervention protocol to support future research. 4. It highlights unintended consequences of AI integration, challenging overly optimistic assumptions about educational technology. 5. It demonstrates the importance of measuring both positive and negative dimensions

of attitudes, rather than assuming technology is universally beneficial.

7. Implications for Practice

For educators and policymakers considering the integration of ChatGPT or similar AI tools into reading instruction, several evidence-informed and tentative recommendations can be offered. First, AI should be positioned as a motivational and supportive tool rather than a comprehensive literacy solution. ChatGPT appears to function most effectively as a short-term engagement enhancer that can spark interest, scaffold struggling readers, and provide differentiated content; however, it should not replace sustained literacy instruction or serve as the primary vehicle for reading development. Second, it is important to maintain a balance between digital and print reading in order to mitigate potential media displacement effects. Students should continue engaging with high-quality print texts, and educators are encouraged to alternate AI-supported sessions with traditional book reading while explicitly discussing the distinct affordances and limitations of each medium. Third, critical AI literacy instruction should be integrated into the curriculum so that students learn to evaluate AI-generated outputs thoughtfully and question their accuracy, bias, and limitations. Additionally, gradual scaffolding withdrawal should be implemented to prevent overdependence on AI tools, with teachers progressively reducing assistance as students develop greater autonomy. Finally, student attitudes and behaviors should be monitored continuously through brief and structured check-ins, such as weekly reflection surveys, to identify potential over-reliance on AI or emerging negative attitudes toward traditional reading. Early identification of such patterns allows for timely and appropriate pedagogical intervention.

8. Limitations

Despite careful design and implementation, this study has several important limitations that constrain the interpretation of its findings. The relatively small sample size (N = 26) limits statistical power and reduces the robustness of the conclusions. The short intervention period of four weeks is also insufficient for examining the development of stable reading habits, which typically require longer-term exposure. Additionally, the quasi-experimental design without full randomization restricts causal inferences. The reliance on self-report measures introduces the possibility of response bias, and the absence of objective comprehension assessments further limits the strength of the outcome evaluation. The study was conducted at a single urban site in Türkiye, which may reduce the generalizability of the findings across different cultural and educational contexts. Moreover, the lack of long-term follow-up prevents conclusions about the sustainability of the observed effects. Finally, potential confounding factors such as self-selection, novelty effects, and Hawthorne effects cannot be fully ruled out. Taken together, these limitations suggest that the findings should be interpreted as exploratory and hypothesis-generating rather than definitive, and caution should be exercised when generalizing beyond the specific context of this study.

AI Usage Disclosure: During manuscript preparation, this manuscript was enhanced with the assistance of artificial intelligence tools (Quillbot, Grammarly). All intellectual contributions are the responsibility of the authors.

Author Contributions: All authors made substantial contributions to the conception, design, and execution of the study, and they fully endorse the conclusions presented.

Author Use of AI Tools: Artificial intelligence tools were used to assist in language editing and improving clarity of expression during the manuscript revision stage. The authors reviewed, verified, and took full responsibility for all content generated or modified using these tools. No AI tools were used for data collection, data analysis, interpretation of results, or generation of original ideas.

Declaration of Interest: The authors declare no conflict of interest.

Ethics Statement: This study was approved by the Bayburt University Social and Human Sciences

Ethics Committee (Decision No. 232, June 20, 2023). All participants and their parents/guardians provided informed consent and assent prior to enrollment. Students were informed of their right to withdraw at any time without penalty. No student chose to withdraw during the study period. Given the participants' ages (10-11 years) and their interaction with an AI language model, several ethical safeguards were implemented: Informed Consent and Assent. Written informed consent was obtained from parents/guardians of all participants. Additionally, age-appropriate assent forms were provided to students, explaining the study purpose, their right to withdraw, and how ChatGPT would be used. Data Privacy and Security: All ChatGPT interactions were conducted through supervised school accounts. No personally identifiable information was shared with the AI system. Conversation logs were anonymized immediately after collection. Teacher Training: Prior to the intervention, the participating teacher completed a 6-hour training workshop on: (a) practical ChatGPT prompt engineering for educational purposes, (b) recognizing and addressing AI-generated misinformation, (c) supporting students' critical evaluation of AI outputs, and (d) managing technical issues during sessions.

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