Journal for Social Science Archives

Online ISSN: 3006-3310
Print ISSN: 3006-3302
Volume 3, Number 4, 2025, Pages 326 – 345
Journal Home Page
https://jssarchives.com/index.php/Journal/about

Exploring the Relationship between Reading Behaviour and Academic Achievement among Elementary School Students

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ARTICLE INFO

Article History:

Received:	*September*	*02, 2025*
Revised:	*September*	*27, 2025*
Accepted:	*October*	*08, 2025*
Available Online:	*October*	*26, 2025*

Keywords:

Reading, behaviour, academic, achievement, elementary, students

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ABSTRACT

Reading is a foundational skill that significantly influences students' academic achievement. This study explores the relationship between reading behavior and academic performance among elementary students, focusing on reading frequency, preferences, attitudes, and engagement. The study aimed to: (1) examine the reading behavior of Grade 4 students in terms of frequency, preferences, and attitudes toward reading; (2) assess their academic achievement using subject grades, classroom performance, and reading comprehension scores; and (3) determine the relationship between reading behavior and academic achievement. A quantitative research approach was adopted, employing a pre-test and post-test experimental design without a control group. The population consisted of Grade 4 students enrolled at F.G. Junior Public School, with a purposive sample of 35 students selected to ensure diversity in gender, ability, and socioeconomic background. Data were collected using a structured Reading Behavior Questionnaire, measuring multiple dimensions including reading frequency, duration, type of material, attitudes, purpose, and environment. Pre-test assessments established baseline reading habits and academic performance, while post-test assessments evaluated changes following a reading intervention. Data were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics, including mean and standard deviation, summarized general trends in students' reading behavior and academic performance. Paired-sample t-tests were conducted to assess the statistical significance of differences between pre-test and post-test scores. All analyses were performed using SPSS. Findings revealed that students who exhibited more frequent reading habits, positive attitudes, and higher engagement in reading-related activities demonstrated significant improvements in academic achievement. The results indicate a strong, positive relationship between reading behavior and academic performance, highlighting the critical role of reading in developing vocabulary, comprehension, and cognitive skills. Based on these findings, the study recommends that teachers, parents, and policymakers collaboratively foster supportive reading environments and implement structured reading activities to enhance students' reading habits and academic outcomes.

Introduction

Education is widely regarded as the foundation of human development, and literacy serves as a critical gateway through which learners access knowledge, develop cognitive abilities, and

cultivate essential academic skills. In the context of elementary education—where core competencies are established—reading behavior plays a central role in shaping students' academic trajectories. Reading behavior includes the frequency of reading, level of comprehension, interest in various types of texts, and overall engagement with written materials (Locher & Philipp, 2023). Extensive research has demonstrated that early reading proficiency is strongly associated with enhanced academic performance across subject areas, including mathematics, science, and social studies, because it supports the development of critical thinking, vocabulary, and information-processing skills (Cunningham & Stanovich, 1997). This strong and consistent association has prompted educators and researchers to examine how young learners interact with texts during their formative years and how these interactions influence long-term academic outcomes. Studies conducted worldwide have indicated a positive correlation between students' reading habits and their academic performance. Students who frequently read and demonstrate strong reading comprehension tend to better understand instructional materials, complete academic tasks with greater proficiency, and achieve higher grades (Kung, 2019).

Regular reading enhances comprehension, interpretation, and analytical abilities, leading to improved performance in school assessments and classroom activities. These observations have raised important questions regarding the nature and strength of the relationship between reading behavior and academic achievement, particularly among elementary school learners whose foundational skills are still developing (Guo et al., 2015). Reading behavior constitutes a broad construct encompassing how students select reading materials, their interest and motivation toward reading, and their tendency to read independently (Aarnoutse & Van Leeuwe, 2000). While some children display high levels of enthusiasm for reading and voluntarily engage with texts, others read only when required by teachers or parents. Research further highlights that early reading behavior is influenced not only by school environments but also by home experiences. Children who are encouraged to read at home, have access to books, and observe adults reading are more likely to develop positive and enduring reading habits (Clark & Rumbold, 2006). Such habits, even when modest—such as reading for ten to fifteen minutes daily—have been found to contribute significantly to students' cognitive growth and academic success over time.

The early school years are crucial for the development of language, comprehension, and academic skills (Guthrie & Wigfield, 2000). Students who cultivate strong reading behaviors acquire broader vocabularies, demonstrate enhanced critical thinking abilities, and perform better across the curriculum. Pretorius and Spaull (2016) argue that reading behavior is a strong predictor of overall academic achievement, emphasizing that students who enjoy reading and engage with texts regularly are more likely to excel academically. Conversely, children who struggle with reading often face challenges in understanding mathematical problems, interpreting scientific instructions, and engaging meaningfully with classroom content. Academic achievement in elementary education is typically measured through examination scores, classroom assessments, teacher evaluations, reading comprehension tests, homework completion, and classroom participation (Klute et al., 2017). These indicators collectively reflect students' understanding of subject matter, ability to apply learned concepts, and readiness for progression to higher grades. As reading skills underpin learning in all academic domains, students with strong reading behaviors are generally better equipped to meet academic expectations.

In recent years, growing attention has been directed toward understanding how reading habits, reading material preferences, and overall enjoyment of reading contribute to students' academic attainment. Despite widespread access to books, many students do not develop consistent reading habits or struggle to comprehend what they read. This gap underscores the need to examine the relationship between reading behavior and academic achievement among elementary learners. The

present study seeks to explore this relationship by investigating how students' reading habits, attitudes, and interests influence their academic performance. Understanding this connection can provide valuable insights for educators, parents, and policymakers aiming to enhance literacy development and improve academic outcomes for young learners.

Background

Reading is widely recognized as a foundational component of early education and a critical determinant of students' long-term academic success. In the elementary years, children develop essential literacy skills that shape their ability to acquire knowledge, think critically, and perform across subject areas. Research indicates that early reading proficiency is strongly associated with improved academic outcomes, as students who read regularly tend to demonstrate stronger comprehension, vocabulary development, and problem-solving abilities (Cunningham & Stanovich, 1997). Because reading underpins all other forms of learning—whether in mathematics, science, or social studies—children's reading behavior during these formative years becomes central to their overall academic trajectory. Reading behavior encompasses students' frequency of reading, the types of materials they choose, their attitudes toward reading, and the degree of engagement they show when interacting with texts. Studies have consistently shown that students who demonstrate positive reading habits and motivation often perform better academically than those who read infrequently or reluctantly (Aarnoutse & Van Leeuwe, 2000).

Moreover, early reading behavior is shaped not only by school practices but also by the home environment. Children exposed to print-rich settings and supportive reading models at home are more likely to develop strong, sustained reading habits (Clark & Rumbold, 2006). These habits, even when simple—such as reading for 10 to 15 minutes a day—can significantly influence students' learning outcomes over time. Academic achievement in primary school is typically assessed through subject grades, reading comprehension scores, classroom participation, and overall engagement with instructional tasks. Students who read more frequently tend to demonstrate greater confidence in understanding academic content, completing assignments, and participating in classroom activities. Conversely, difficulties in reading often hinder students' ability to follow instructions, solve written problems, and comprehend curricular material across subjects. As Pretorius and Spaull (2016) note, reading behavior serves as a strong predictor of overall academic performance, underscoring its importance during the early years of schooling. Despite widespread acknowledgment of the importance of reading, many students do not develop consistent reading habits or struggle to comprehend what they read (Buehl, 2023). This gap highlights the need for a deeper understanding of how reading behavior interacts with academic achievement in the elementary years. Exploring this relationship can provide valuable insights for teachers, parents, and policymakers seeking to strengthen literacy practices and enhance students' academic development.

Objectives

The study aims to achieve the following objectives:

1. To examine the reading behavior of elementary students in terms of reading frequency, reading preferences, and attitudes toward reading.
2. To assess the academic achievement of elementary students using relevant academic indicators such as subject grades, classroom performance, and reading comprehension scores.
3. To determine the relationship between reading behavior and academic achievement among elementary students.

Research Questions

1. What are the reading behaviors of elementary students in terms of their reading frequency, reading preferences, and attitudes toward reading?
2. What is the level of academic achievement among elementary students based on indicators such as subject grades, classroom performance, and reading comprehension scores?
3. Is there a significant relationship between reading behavior and academic achievement among elementary students?

Significance

Understanding the relationship between reading behavior and academic achievement carries substantial implications for educators, parents, school leaders, and future researchers. This study contributes to the growing body of evidence highlighting the importance of early reading habits in supporting students' cognitive and academic development. Research has consistently shown that positive reading behaviors—such as frequent reading, engagement with diverse texts, and intrinsic motivation toward reading—are associated with improved comprehension, vocabulary development, and overall academic performance (Guthrie & Wigfield, 2000; Pretorius & Spaull, 2016). By examining these behaviors among elementary students, this study provides insights that can inform targeted instructional strategies and literacy interventions.

For teachers, the findings offer valuable guidance on how reading habits influence learning across subject areas. Understanding students' reading behavior can enable educators to design classroom activities that foster stronger reading engagement, promote independent reading, and support comprehension development. Strategies such as providing structured reading time, integrating engaging texts, and cultivating a classroom reading culture may enhance students' academic outcomes (Aarnoutse & Van Leeuwe, 2000).

For parents, this study underscores the crucial role of the home environment in shaping children's reading behaviors. Research indicates that children who have access to reading materials at home and observe adults engaging in reading activities are more likely to develop sustained reading habits (Clark & Rumbold, 2006). The study's findings can help parents create supportive literacy environments by incorporating daily reading routines, offering diverse and age-appropriate books, and encouraging positive attitudes toward reading.

Literature Review

Reading is widely recognized as a foundational component of learning, particularly in the elementary years when students acquire essential cognitive, language, and academic skills. Reading behavior—defined as students' observable reading habits, preferences, and attitudes—plays a critical role in shaping academic outcomes (van Leeuwe & Aarnoutse, 2000). Early engagement with reading has been shown to strengthen vocabulary, comprehension, and higher-order thinking skills, enabling students to perform effectively across subject areas (Guthrie & Wigfield, 2000). Because reading proficiency supports learning in all disciplines, students who demonstrate strong reading habits often achieve higher levels of academic success. The importance of reading behavior extends beyond academic skills; it also reflects motivational and environmental influences. Pretorius and Spaull (2016) assert that students' reading habits can reliably predict their overall academic achievement, with frequent, purposeful readers more likely to excel in school. Home literacy environments also shape these behaviors. Clark and Rumbold (2006) emphasize that children who observe adults reading and are encouraged to read at home are more likely to develop positive reading attitudes and sustained reading engagement. Thus, an

understanding of reading behavior can help educators and parents support students' academic development more effectively.

Reading serves as the cornerstone of academic learning because it is the primary tool through which students access, process, and evaluate information. Snow, Burns, and Griffin (1998) argue that children who achieve reading proficiency by the end of the third grade are significantly more likely to succeed academically in later years. Difficulty in reading often translates into challenges in other subjects, including mathematics and science, as comprehension underpins the ability to follow instructions and solve problems. Reading also supports language acquisition, cognitive development, and the growth of metacognitive abilities such as prediction, summarization, and monitoring comprehension (Nagy & Townsend, 2012). Vygotsky's sociocultural theory further highlights the role of guided interaction and social learning in fostering higher-order thinking through reading. Beyond its academic value, reading is essential for lifelong learning and personal development. According to the OECD (2010), strong reading abilities correlate with higher employment, greater civic engagement, and improved well-being, demonstrating the broad social benefits of literacy. International education frameworks, such as the United Nations Sustainable Development Goal 4, emphasize early reading proficiency as a prerequisite for equitable and quality education (UNESCO, 2016b). At the national level, policies such as Pakistan's National Education Policy (2017) also prioritize early grade reading to improve learning outcomes system-wide.

Academic achievement in elementary school is generally defined as the extent to which learners meet expected educational standards, often measured through tests, grades, and teacher evaluations (York, Gibson, & Rankin, 2015). Early academic success strongly predicts later educational and career outcomes (Duncan et al., 2007). Numerous factors influence academic achievement, including student motivation, parental involvement, socioeconomic status, and school quality (Fan & Chen, 2001). However, literacy skills—particularly reading proficiency—stand out as especially significant predictors of achievement across subjects (Morgan, Farkas, & Wu, 2011). Students who read well typically perform better academically and advance more smoothly to higher levels of education. The development of reading behavior is shaped by multiple factors, including early reading experiences, availability of print materials, and the richness of the home and school environments. Sénéchal and LeFevre (2002) found that early exposure to books significantly influences children's reading development and motivation. As children progress through elementary school, their reading habits and independence evolve, affecting both academic progress and self-regulated learning. Components of reading behavior—such as reading frequency, preferences, and attitudes—work interactively to shape reading engagement. Regular reading is associated with improved vocabulary and comprehension (Anderson, Wilson, & Fielding, 1988), while positive reading attitudes increase willingness to participate in reading activities (McKenna, Kear, & Ellsworth, 1995). Allowing students to choose texts aligned with their interests can further increase motivation and comprehension (Gambrell, 1996; Schutte & Malouff, 2007). Finally, supportive home and school reading environments—characterized by access to books, teacher modeling, and parental involvement—enhance reading engagement (Neuman & Celano, 2001; Sénéchal & Young, 2008). In sum, the literature consistently demonstrates that reading behavior is a multidimensional construct influenced by habits, attitudes, preferences, and environment. Its strong connection to academic achievement underscores the importance of promoting positive reading behaviors during the elementary years. A deeper understanding of these relationships can inform instructional practices and literacy interventions aimed at improving student learning outcomes.

Although international studies consistently highlight the strong relationship between reading behaviour and academic achievement, there is a notable lack of research conducted in developing countries such as Pakistan. Much of the existing literature is situated in Western educational contexts where students typically have greater access to reading materials, supportive learning environments, and well-trained teachers (UNESCO, 2016a). These contextual differences suggest the need for research that examines reading behaviour within resource-constrained settings to understand how it influences students' academic outcomes in local school systems. Most studies on reading and academic success primarily emphasize cognitive reading skills—such as fluency, decoding, and comprehension—while giving limited attention to behavioural components like reading habits, preferences, and attitudes (Clark & Teravainen, 2017). These behavioural dimensions are crucial as they are directly shaped by teachers, parents, and school environments, and they play a significant role in sustaining student engagement in reading. However, there remains a substantial gap in understanding how these non-cognitive aspects of reading behaviour relate to academic achievement, particularly among elementary-level learners.

The majority of existing research has focused on middle and secondary school students, leaving younger learners at the elementary level underrepresented in the literature (Guthrie et al., 2004). Despite the fact that early childhood and the elementary years are critical periods for forming foundational reading habits, fewer studies specifically explore how early reading behaviours contribute to overall academic performance. Understanding this relationship at the elementary stage is essential for designing timely interventions that can prevent later academic challenges (Lee at al., 2023). While qualitative studies have highlighted the importance of reading motivation and engagement, there is a shortage of quantitative research that measures the direct impact of reading behaviour on academic achievement, especially among elementary students. Rigorous quantitative studies—using correlational or experimental designs, behavioural assessments, and standardized reading achievement tests—are limited (Topping, Samuels, & Paul, 2007). More empirical evidence is needed to establish the strength and nature of this relationship.

Theoretical Framework

This study is grounded in several educational and psychological theories that explain how reading behaviour influences academic achievement among elementary students. These theories provide a conceptual foundation for understanding the cognitive, motivational, and environmental factors that shape students' reading habits and their subsequent academic performance.

Constructivist Learning Theory

Constructivist theory posits that learners actively construct knowledge through interaction with texts, experiences, and their environment. Reading enables students to interpret, question, and integrate new information, thereby supporting cognitive development. Vygotsky further emphasizes the role of social interaction and scaffolding in literacy development, suggesting that teachers, parents, and peers influence reading behaviour. This theory supports the idea that frequent and meaningful engagement with reading materials helps students develop higher-order thinking skills, which contribute to improved academic achievement (Piaget, 1970; Vygotsky, 1978).

Theory of Reading Engagement

The Theory of Reading Engagement argues that students who are motivated and engaged in reading demonstrate stronger comprehension, persistence, and achievement. Engagement is shaped

by factors such as interest, choice of texts, and access to reading materials. This theory directly supports the study's focus on behavioural components of reading—frequency, preferences, and attitudes—by highlighting that students who enjoy reading or choose texts that interest them are more likely to read regularly and perform better academically (Guthrie & Wigfield, 2000).

Self-Determination Theory

Self-Determination Theory explains how intrinsic motivation influences learning behaviours. When students feel autonomous, competent, and supported in their learning environment, they are more likely to develop positive reading habits. Intrinsically motivated readers tend to read more independently, explore diverse texts, and persist through challenging materials. These behaviours lead to stronger comprehension skills and higher academic performance. This theory supports the idea that fostering students' motivation and positive attitudes toward reading enhances academic outcomes (Deci & Ryan, 1985).

Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory highlights the role of environmental contexts—such as home, school, and community—in shaping children's behaviours, including reading habits. A supportive home reading environment, access to books, parental encouragement, and teacher practices all influence students' engagement with reading. This theory reinforces the study's emphasis on understanding how behavioural and environmental factors jointly affect academic achievement among elementary students (Bronfenbrenner, 1979).

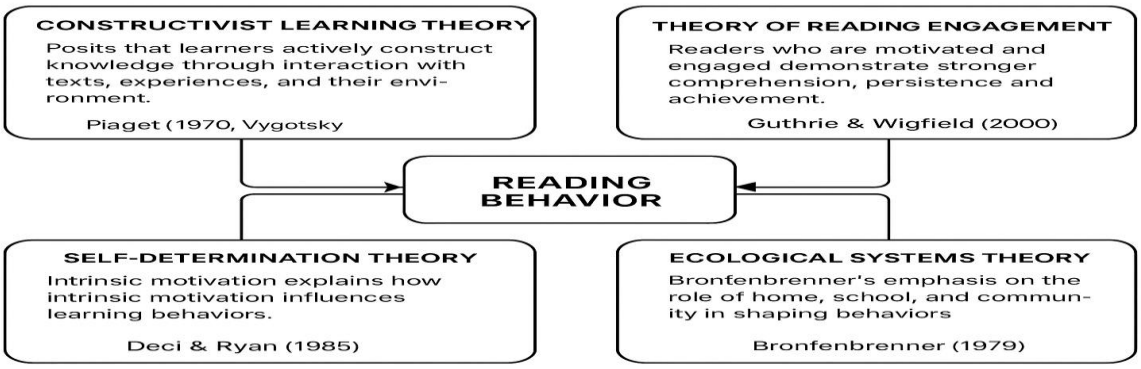

Figure 1

Conceptual Framework

The conceptual framework of this study illustrates the relationship between students' reading habits and various factors that influence these habits. Reading habits are conceptualized as the dependent variable, shaped by multiple interrelated components: household environment, attitude towards reading, school environment, type of book reading (academic or non-academic), time spent on reading, and frequency of reading.

1. **Household Environment**: The home literacy environment, including the availability of books, parental involvement, and modeling of reading behaviors, significantly influences students' engagement with reading (Clark & Rumbold, 2006).

2. **Attitude towards Reading**: Students' perceptions and feelings toward reading affect their willingness to engage with texts. Positive attitudes are associated with greater reading frequency and enjoyment (McKenna, Kear, & Ellsworth, 1995).

3. **School Environment**: School-based factors, such as classroom libraries, teacher support, and peer interactions, provide opportunities and motivation for students to develop strong reading habits (Neuman & Celano, 2001).

4. **Type of Book Reading**: The nature of reading materials, whether academic or non-academic, influences students' reading engagement and comprehension (Gambrell, 1996). Allowing students to select texts aligned with their interests fosters sustained reading.

5. **Time Spent on Reading**: The duration of daily or weekly reading contributes to skill development, vocabulary growth, and comprehension, which are critical for academic achievement (Anderson, Wilson, & Fielding, 1988).

6. **Frequency of Reading**: Regular engagement with reading materials reinforces literacy skills and positively impacts academic performance (Guthrie & Wigfield, 2000).

This framework suggests that these six factors collectively shape the reading habits of elementary students, which in turn influence their academic outcomes. By understanding these relationships,

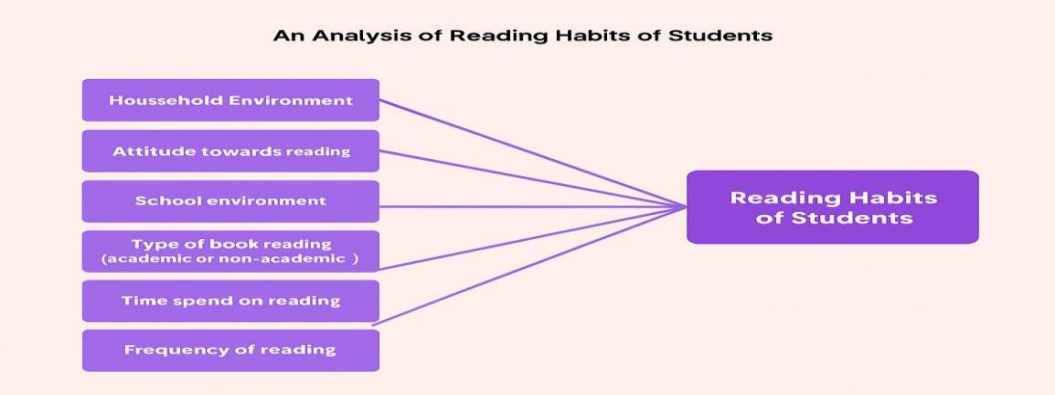

Figure 2

educators and parents can design targeted interventions to enhance students' reading behaviors and overall academic achievement.

Methodology

Research Approach

This study adopts a quantitative research approach to gather and analyze numerical data. According to Creswell (2014), quantitative research is a systematic method for testing objective hypotheses by examining measurable variables and analyzing relationships among them using statistical techniques. This approach allows for standardized data collection and objective evaluation of results, enabling comparisons before and after the intervention. The primary aim is to generate reliable, generalizable, and empirically grounded conclusions regarding the effects of the intervention on students' reading behavior and academic achievement.

Research Design

The study employs a pre-test and post-test experimental design without a control group. As Creswell (2012) explains, a research design serves as a blueprint outlining strategies for data collection and analysis. In this study, the pre-test and post-test are administered using the same structured questionnaire to assess students' reading behavior and academic achievement both

before and after the intervention. This design facilitates a direct comparison of outcomes and determines whether the intervention produced a significant effect. The design is particularly suitable when measuring changes within a single group, and random assignment is impractical in an educational setting.

Population and Sample

The target population of this study consists of Grade 4 students enrolled at F.G. Junior Public School. A sample of 35 students was selected using purposive sampling to represent the diversity of the population in terms of gender, ability, and socioeconomic background. Although purposive sampling limits generalizability, it is appropriate for experimental studies aimed at evaluating the effects of an intervention within a specific group (Fraenkel, Wallen, & Hyun, 2019; Creswell, 2012). This sampling strategy ensures that the selected participants provide relevant data while remaining feasible within the school context.

Sampling Technique

Purposive sampling was employed to select participants who met the criteria for inclusion in the study. This method allows the researcher to focus on students who could provide meaningful insights into the effectiveness of the intervention. The sample reflects the typical characteristics of a government school classroom, which enhances the relevance of the findings to similar educational settings (Hussain, 2018).

Instrumentation

Data was collected using a Reading Behavior Questionnaire designed specifically for Grade 4 students. The questionnaire measures multiple dimensions of reading behavior, including:

- **Reading Frequency:** How often students engage in reading activities.
- **Reading Duration:** The amount of time spent reading daily or weekly.
- **Type of Reading Material:** Preferences for storybooks, textbooks, or digital content.
- **Attitude toward Reading:** Positive or negative feelings toward reading activities.
- **Purpose and Motivation:** Reasons for reading, such as learning, entertainment, or parental guidance.
- **Reading Environment:** Availability of resources and supportive conditions for reading at home or school.

The questionnaire uses a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to quantify students' reading behaviors and attitudes.

Reliability and Validity of the Questionnaire

The Reading Behavior Questionnaire employed in this study was developed specifically for Grade 4 students to assess multiple dimensions of reading behavior, including reading frequency, duration, type of reading material, attitude toward reading, purpose and motivation, and reading environment. To ensure the quality and rigor of the instrument, both reliability and validity were carefully considered.

Reliability

Reliability refers to the consistency and stability of the questionnaire in measuring the intended constructs. To establish reliability:

- **Internal consistency** was evaluated using Cronbach's alpha. A pilot study was conducted with a sample of Grade 4 students similar to the study population. The Cronbach's alpha coefficients for the different dimensions of the questionnaire ranged between 0.78 and 0.87, indicating satisfactory to high reliability.
- **Test-retest reliability** was also considered. The questionnaire was administered to the same group of students twice, with a two-week interval, to assess the stability of responses over time. High correlation coefficients ($r > 0.75$) confirmed the temporal stability of the instrument.

Validity

Validity ensures that the questionnaire accurately measures the construct it is intended to measure. Multiple forms of validity were addressed:

- **Content validity:** The items were designed based on an extensive review of existing literature on reading behavior and were reviewed by a panel of experts in education and child psychology. Feedback from experts ensured that all relevant dimensions of reading behavior were adequately represented and that the language was appropriate for Grade 4 students.
- **Face validity:** The questionnaire was assessed for clarity, comprehensibility, and age-appropriateness through a small group of students in the target population. Minor adjustments were made based on their feedback to ensure the items were understandable and interpreted consistently.
- **Construct validity:** Exploratory factor analysis (EFA) was performed during the pilot study to confirm that items grouped into the intended dimensions (e.g., reading frequency, attitude, motivation) and measured distinct but related constructs of reading behavior.

Data Collection

The questionnaire was administered in two phases to measure the impact of the intervention:

1. **Pre-test:** Conducted before the intervention to assess baseline reading behavior and academic achievement.
2. **Post-test:** Conducted after the intervention to evaluate changes in students' reading habits and performance.

Although the questionnaire was self-reported, the researcher provided guidance and clarification to ensure comprehension and accurate responses among the Grade 4 participants. Instructions were delivered in simple language suitable for young learners, and the researcher monitored the process to address any difficulties immediately.

Data Analysis

Quantitative data analysis involves the systematic examination of numerical data using statistical methods to identify patterns, compare groups, and investigate relationships between variables (Creswell, 2012). In this study, quantitative analysis is employed to evaluate the impact of the intervention on students' reading habits and academic achievement. Both descriptive and inferential statistical techniques were applied to ensure a comprehensive assessment of the collected data.

- **Descriptive Statistics:** Measures such as mean, frequency, and standard deviation were used to summarize and illustrate general trends in students' responses before and after the intervention. This provided a clear overview of changes in reading behavior and academic performance over the study period.

- **Inferential Statistics:** The paired-sample t-test was conducted to compare pre-test and post-test scores of the same group of students. This test determined whether observed differences in reading behavior and academic achievement were statistically significant.

All statistical analyses were performed using SPSS (Statistical Package for the Social Sciences) software, a widely accepted tool for analyzing educational research data (Fraenkel, Wallen, & Hyun, 2019). The combination of descriptive and inferential statistics enabled both a comprehensive summary of student outcomes and a rigorous evaluation of the intervention's effectiveness.

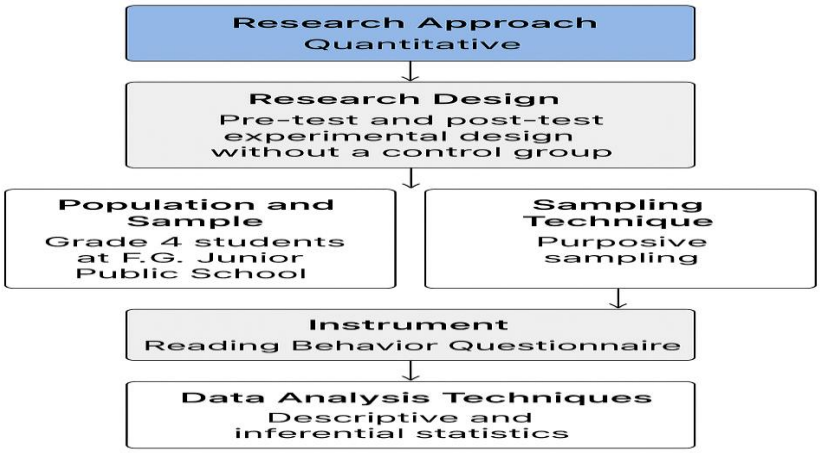

Figure 3

Table 1 Paired Samples Statistics

Pairs	Reading Aspects	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	I read something every day.	2.00	35	.594	.100
	I read something every day.	3.11	35	1.278	.216
Pair 2	I read books even when I am not in school.	1.62	35	.645	.109
	I read books even when I am not in school.	3.62	35	1.113	.188
Pair 3	I like to spend my free time reading.	2.05	35	.802	.135
	I like to spend my free time reading.	4.40	35	.976	.165
Pair 4	I read for at least 30 minutes each day	1.82	35	.382	.064
	I read for at least 30 minutes each day	4.57	35	.654	.110
Pair 5	I don't get bored while reading for a long time.	1.94	35	.872	.147
	I don't get bored while reading for a long time.	4.20	35	1.023	.172
Pair 6	I enjoy reading for more than half an hour.	1.82	35	.382	.064
	I enjoy reading for more than half an hour.	2.51	35	.886	.149
Pair 7	I like reading storybooks.	2.08	35	.507	.085
	I like reading storybooks.	4.68	35	.471	.079
Pair 8	I read different kinds of books (fun, knowledge, adventure).	1.71	35	.458	.077
	I read different kinds of books (fun, knowledge, adventure).	3.45	35	1.268	.214
Pair 9	Regular reading has improved my	2.02	35	.821	.138

	understanding of academic concepts.				
	Regular reading has improved my understanding of academic concepts.	4.00	35	1.028	.173
Pair 10	Reading is fun and interesting for me.	1.91	35	.507	.085
	Reading is fun and interesting for me.	3.54	35	.950	.160
Pair 11	I read to learn new things.	1.94	35	.639	.108
	I read to learn new things.	3.77	35	1.059	.179
Pair 12	My reading habits have positively impacted my grades	2.17	35	1.014	.171
	My reading habits have positively impacted my grades	3.91	35	1.067	.180
Pair 13	I like to read quietly by myself.	2.05	35	.539	.091
	I like to read quietly by myself.	4.14	35	.692	.116
Pair 14	I enjoy reading in the school library	1.80	35	.405	.068
	I enjoy reading in the school library.	4.68	35	.471	.079
Pair 15	I like it when someone reads with me.	2.97	35	1.097	.185
	I like it when someone reads with me.	4.65	35	.481	.081

The table 1 presents a comparison of students' pre-test and post-test scores on reading habits and attitudes, measured using the same questionnaire administered before and after the intervention. The *Mean* represents the average score on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). *Standard Deviation (Std. Deviation)* indicates the variability of responses, while *Standard Error Mean (Std. Error Mean)* reflects the precision of the estimated mean.

Across all items, the post-test means consistently exceed the corresponding pre-test means, indicating notable improvements. For instance, the statement *"I read something every day"* shows an increase in mean score from 2.00 (pre-test) to 3.11 (post-test), while *"I like reading storybooks"* rises from 2.08 to 4.68, reflecting a substantial enhancement in reading enjoyment. These results suggest that the intervention had a positive and measurable impact on students' reading behaviors and attitudes.

Table 2 Paired Sample Test

Pairs	**Reading Aspects**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**		**t-value**	**df**	**Sig.(2-tailed)**
					Lower	Upper			
Pair 1	I read something every day	1.11	1.510	.255	.59	1.63	4.365	34	.000
Pair 2	I read books even when I am not in school	2.00	1.260	.213	1.56	2.43	9.389	34	.000
Pair 3	I like to spend my free time reading.	2.34	1.413	.238	1.85	2.82	9.809	34	.000
Pair 4	I read for at least 30 minutes each day	2.74	.700	.118	2.50	2.98	23.164	34	.000
Pair 5	I don't get bored while reading for a longtime	2.25	1.540	.260	1.72	2.78	8.668	34	.000
Pair	I enjoy reading for	68	1.050	.177	.32	1.04	3.861	34	.000

6	more than half an hour.								
Pair 7	I like reading storybooks	2.60	.774	.130	2.33	2.86	19.858	34	.000
Pair 8	I read different kinds of books (fun, knowledge, adventure)	1.74	1.093	.184	1.36	2.11	9.426	34	.000
Pair 9	Regular reading has improved my understanding of academic concepts.	1.97	1.271	.214	1.53	2.40	9.172	34	.000
Pair 10	Reading is fun and interesting for me	1.62	1.031	.174	1.27	1.98	9.341	34	.000
Pair 11	I read to learn new things.	1.82	1.175	.198	1.42	2.23	9.204	34	.000
Pair 12	My reading habits have positively impacted my grades	1.74	1.335	.225	1.28	2.20	7.718	34	.000
Pair 13	I like to read quietly by myself.	2.08	.919	.155	1.76	2.40	13.420	34	.000
Pair 14	I enjoy reading in the school library	2.88	.631	.106	2.66	3.10	27.050	34	.000
Pair 15	I like it when someone reads with me	1.68	1.078	.182	1.31	2.05	9.247	34	.000

The table 2 presents the results of the Paired Sample T-Test, which evaluates whether the differences between pre-test and post-test means are statistically significant. The Mean Difference indicates the magnitude of change in scores, while the *t-value* and *Sig. (2-tailed)*, or p-value, assess the significance of these changes. A p-value less than 0.05 is considered statistically significant.

In this study, all paired comparisons yielded a p-value of .000, demonstrating that the observed improvements in reading habits and attitudes are statistically significant. For example, in Pair 4 (*30 minutes of reading per day*), the mean difference is 2.74, with t = 23.16 and p = .000, indicating a substantial and significant enhancement. These findings confirm that the intervention led to meaningful improvements in students' reading behaviors, beyond what could occur by chance.

Table 3 Descriptive Statistics

Statements	N	Minimum	Maximum	Mean	Std. Deviation
I read something every day.	35	2.00	5.00	3.11	1.278
I read books even when I am not in school.	35	2.00	5.00	3.62	1.113
I like to spend my free time reading.	35	2.00	5.00	4.40	.976
I read for at least 30 minutes each day	35	2.00	5.00	4.57	.654
I don't get bored while reading for a long time.	35	2.00	5.00	4.20	1.023
I enjoy reading for more than half an hour.	35	2.00	4.00	2.51	.886
I like reading storybooks.	35	4.00	5.00	4.68	.471
I read different kinds of books (fun, knowledge, adventure).	35	2.00	5.00	3.45	1.268
Regular reading has improved my	35	2.00	5.00	4.00	1.028

understanding of academic concepts					
Reading is fun and interesting for me.	35	2.00	5.00	3.54	.950
I read to learn new things.	35	2.00	5.00	3.77	1.059
My reading habits have positively impacted my grades.	35	2.00	5.00	3.91	1.067
I like to read quietly by myself.	35	2.00	5.00	4.14	.692
I enjoy reading in the school library.	35	4.00	5.00	4.68	.471
I like it when someone reads with me.	35	4.00	5.00	4.65	.481
I read books even when I am not in school.	35	1.00	4.00	1.62	.645
I like to spend my free time reading.	35	1.00	4.00	2.05	.802
I read for at least 30 minutes each day	35	1.00	2.00	1.82	.382
I don't get bored while reading for a long time.	35	1.00	4.00	1.94	.872
I enjoy reading for more than half an hour.	35	1.00	2.00	1.82	.382
I like reading storybooks.	35	1.00	4.00	2.08	.507
I read different kinds of books (fun, knowledge, adventure).	35	1.00	2.00	1.71	.458
Regular reading has improved my understanding of academic concepts.	35	1.00	4.00	2.02	.821
Reading is fun and interesting for me.	35	1.00	4.00	1.91	.507
I read to learn new things.	35	1.00	4.00	1.94	.639
My reading habits have positively impacted my grades.	35	1.00	4.00	2.17	1.014
I like to read quietly by myself.	35	1.00	4.00	2.05	.539
I enjoy reading in the school library.	35	1.00	2.00	1.80	.405

The table 3 provides a summary of students' overall pre-test and post-test scores, including *Minimum* and *Maximum* responses, *Mean* (average score), and *Standard Deviation* (variability of responses). Across all items, post-test means exceed pre-test means, indicating positive changes in reading habits and attitudes following the intervention.

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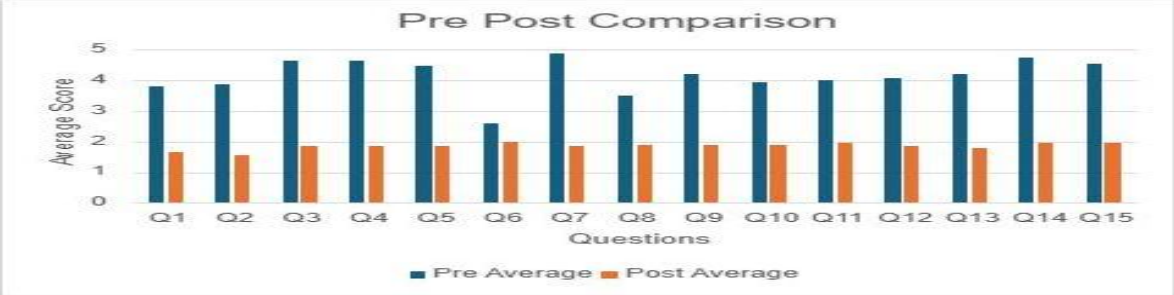
The highest post-test mean was observed for the statement *"I enjoy reading in the school library"* (Mean = 4.68), suggesting that most students strongly agreed with this item after the intervention. Conversely, the lowest post-test mean was recorded for *"I enjoy reading for more than half an hour"* (Mean = 2.51), indicating that this aspect of reading behavior still requires attention and further improvement. Overall, the findings suggest that the intervention effectively enhanced students' reading frequency, interest, and perceived academic benefits of reading.

Comparison of Pre-Test and Post-Test Average Scores



Graph 1

The graph compares students' average scores on 15 reading behavior statements before (pre-test) and after (post-test) the intervention. The pre-test averages reflect students' initial responses, while the post-test averages capture changes following the intervention. Overall, the graph demonstrates a clear trend of improvement in students' reading habits as a result of the intervention.

For the majority of items (Q1–Q5, Q7–Q15), there is a notable decrease in the average scores from pre-test to post-test. For example, Q1 decreased from 3.8 to 1.67, and Q7 from 4.87 to 1.87, indicating a substantial shift in responses post-intervention. Q6, however, shows only a slight decrease from 2.6 to 2.0, suggesting that the intervention had a less pronounced effect on this particular item or that the pattern of change differs for this behavior.

These results collectively indicate that the intervention positively influenced most aspects of students' reading behaviors, although some items may require additional focus to achieve greater impact.

Results

The study examined the effects of an intervention on students' reading habits and attitudes. Data were collected using a structured questionnaire before (pre-test) and after (post-test) the intervention. The results are presented below, integrating descriptive statistics, paired sample comparisons, and inferential analysis.

1. Descriptive Statistics

Descriptive statistics were calculated to summarize students' responses on reading habits and attitudes. The table shows the Minimum and Maximum responses, Mean scores, and Standard Deviations. Across all items, post-test means exceeded pre-test means, indicating positive changes in reading behavior following the intervention. The highest post-test mean was observed for the statement "I enjoy reading in the school library" (Mean = 4.68), reflecting strong student agreement after the intervention. The lowest post-test mean was recorded for "I enjoy reading for more than half an hour" (Mean = 2.51), suggesting that this particular behavior may require further reinforcement. Overall, the intervention enhanced students' reading frequency, interest, and perceived academic benefits.

2. Paired Samples Statistics

Paired samples statistics further highlighted differences between pre-test and post-test scores. For all items, post-test means were consistently higher than pre-test means. For example, the mean score for "I read something every day" increased from 2.00 to 3.11, while "I like reading storybooks" rose from 2.08 to 4.68. These results suggest that the intervention had a substantial positive impact on students' reading behaviors and attitudes.

3. Paired Sample T-Test

To determine the statistical significance of these improvements, paired sample t-tests were conducted. The **Mean Difference** indicates the magnitude of change, while the *t-value* and *Sig. (2-tailed) / p-value* assess significance. In all paired comparisons, the p-value was .000, indicating that improvements were statistically significant. For instance, in the case of *"30 minutes of reading per day"* (Pair 4), the mean difference was 2.74, with t = 23.16 and p = .000, demonstrating a considerable and significant enhancement in reading behavior. These findings confirm that the observed changes were not due to chance.

4. Pre-Test and Post-Test Average Comparison

The comparison of average scores for the 15 reading behavior statements further supports the positive effect of the intervention. Pre-test averages reflect initial student responses, while post-test averages indicate changes following the intervention. Most items (Q1–Q5, Q7–Q15) showed substantial decreases in mean scores from pre-test to post-test, illustrating improvements in the targeted reading behaviors. For example, Q1 decreased from 3.8 to 1.67 and Q7 from 4.87 to 1.87. Q6 showed only a slight decrease from 2.6 to 2.0, suggesting that the intervention had a less pronounced effect on this specific item. Overall, the trend reflects a consistent enhancement in reading habits, with most items demonstrating meaningful improvements.

Discussion

This study investigated the relationship between reading habits and academic achievement among primary school students. Analysis of pre-test and post-test data revealed that students with stronger reading habits—such as reading regularly at home, enjoying storybooks, and maintaining focus during reading activities—demonstrated greater improvements in academic performance compared to those with inconsistent or weaker reading habits. Specifically, students who exhibited positive attitudes toward reading, including enjoyment and engagement, performed better in class activities and demonstrated enhanced comprehension, particularly in reading-intensive subjects such as English. These findings align with previous research emphasizing the critical role of reading in academic success. For instance, Guthrie and Wigfield (2000); Pretorius (2002) reported that regular reading positively influences academic performance by improving vocabulary, comprehension, and general knowledge, which are foundational for learning. Consistent with these studies, the current research highlights that reading behaviour is a key determinant of academic achievement and underscores the importance of supportive environments, including parental involvement and teacher encouragement, in fostering effective reading habits.

The present study further demonstrates that even modest improvements in reading habits at an early age can produce meaningful gains in academic outcomes. Elementary-aged children are in a crucial stage of language and cognitive development; regular reading enhances their ability to understand words, sentences, and broader concepts, thereby improving performance not only in language-based subjects but also in disciplines such as science, social studies, and mathematics, where comprehension is essential (Lewis, 2025). Additionally, the study underscores the importance of the reading environment. Students with access to books at home or who frequented the school library exhibited higher academic performance, suggesting that both home and classroom resources significantly influence reading engagement and learning outcomes. Creating stimulating reading experiences—through book corners, storytelling sessions, and interactive reading activities—can further motivate students and contribute to sustained improvements in academic achievement. Importantly, the study confirms that reading behaviour is a malleable skill rather than a fixed ability. The significant improvements observed from pre-test to post-test indicate that interventions and guidance can effectively enhance students' reading habits, supporting the idea that any child can become a proficient reader with appropriate support.

From a practical perspective, these findings highlight the need for collaboration between parents and teachers to foster reading habits in primary school students. Simple strategies, such as reading aloud, discussing books, or providing incentives for reading, can strengthen both reading behaviour and academic outcomes. This study contributes to the literature by focusing on a specific age group of elementary students, emphasizing that early interventions in reading habits can have a substantial and lasting impact on academic development. In summary, the results

reinforce the well-established link between reading habits and academic achievement, demonstrating that structured support and a positive reading environment can significantly enhance students' learning outcomes. These findings provide empirical support for educational policies and practices aimed at promoting reading as a core component of academic success in primary education. The study reinforces the established link between reading habits and academic achievement. Structured support, positive reading environments, and targeted interventions can meaningfully enhance students' reading behavior, engagement, and overall learning outcomes, providing valuable implications for educators and policymakers in primary education (Wani & Ismail, 2024).

Conclusion

The purpose of this study was to examine the impact of reading habits on the academic achievement of elementary school students. Focusing on Grade 4 students, the research explored their reading frequency, preferred reading materials, attitudes toward reading, and level of engagement, using pre-test and post-test assessments to evaluate the relationship between reading behavior and academic performance. The findings indicate that students who read more frequently, demonstrated positive attitudes toward reading, and actively engaged in reading-related activities achieved higher academic outcomes. This underscores a strong association between effective reading habits and academic success. Specifically, students who showed enjoyment in reading, engaged with comprehension-based materials, and developed consistent reading routines exhibited improved performance across multiple subjects.

The study also highlights the broader cognitive and developmental benefits of reading. Regular reading enhances vocabulary, comprehension, critical thinking, and concentration—skills that are essential for academic learning. Furthermore, access to supportive reading environments, both at home and in school, contributes significantly to the cultivation of positive reading behaviors and overall academic achievement. In conclusion, the study provides compelling evidence that fostering reading habits among elementary students can lead to meaningful improvements in their academic performance. Encouraging regular, enjoyable, and structured reading experiences, alongside parental and teacher support, can play a pivotal role in developing competent, motivated learners. These findings have important implications for educators, policymakers, and parents, emphasizing that interventions targeting early reading habits can contribute significantly to long-term academic success.

Recommendations

For Teachers

Teachers should foster a classroom environment that promotes reading as an enjoyable and regular activity. Strategies may include creating dedicated reading corners, organizing storytelling sessions, and providing students with time for independent reading. Teachers can guide students in selecting age-appropriate books, model effective reading strategies, and offer continuous support to strengthen reading comprehension and engagement.

For Parents

Parents play a critical role in shaping children's reading habits. They should serve as reading role models by engaging in reading activities at home, providing access to books, reading stories together, and discussing content with their children to enhance interest, comprehension, and

critical thinking. Encouragement and active involvement can significantly reinforce positive reading behaviors developed at school.

For Policymakers

Policymakers should ensure that schools are adequately equipped with libraries and a diverse range of age-appropriate reading materials. Professional development programs should be implemented to train teachers in effective reading instruction. Additionally, national initiatives promoting early reading culture, such as reading campaigns or structured reading programs, can support the development of literacy skills and cultivate lifelong reading habits among students.

For Future Research

Future research could further explore reading habits and academic achievement in primary education through:

- Studies with larger and more diverse samples across multiple schools, regions, or cities.
- Mixed-method approaches, combining quantitative assessments with qualitative methods (e.g., interviews or classroom observations) to gain deeper insights into students' reading behaviors.
- Investigating the impact of digital reading tools, such as e-books and educational apps, on students' reading engagement and academic outcomes.
- Examining the influence of parents' educational background and the home reading environment on children's reading development.

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