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## EXPLORING THE RELATIONSHIP BETWEEN SCREEN TIME AND ACADEMIC ACHIEVEMENT AMONG ELEMENTARY SCHOOL STUDENTS: A CROSS-SECTIONAL ANALYSIS

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### ABSTRACT:

This cross-sectional analysis investigates the relationship between screen time and academic achievement among elementary school students. With the increasing prevalence of digital devices and screen-based activities in children's lives, concerns have arisen regarding the potential impact of excessive screen time on academic performance. This study utilizes data collected from a diverse sample of elementary school students to examine the associations between screen time, including time spent on electronic devices such as smartphones, tablets, computers, and television, and academic achievement measures, including standardized test scores and grades. Statistical analyses, including correlation coefficients and regression models, are employed to explore the nature and strength of these relationships while controlling for potential confounding variables such as socioeconomic status and parental involvement. The findings from this study contribute to our understanding of the complex interplay between screen time and academic achievement among elementary school students, informing evidence-based strategies for promoting healthy screen habits and optimizing academic outcomes in this population.



**KEYWORDS:** *Screen time, Academic achievement, Elementary school students, Cross-sectional analysis, Digital devices, Standardized test scores, Parental involvement.*

### INTRODUCTION

In recent years, the prevalence of digital devices and screen-based activities among children, particularly elementary school students, has surged dramatically. From smartphones and tablets to computers and television, screens have become ubiquitous in children's lives, offering access to entertainment, education, and social interaction. While digital technology offers numerous benefits, concerns have emerged regarding the potential impact of excessive screen time on children's academic achievement. Elementary school represents a crucial period in children's cognitive and academic development, laying the foundation for future educational success. During these formative years, children spend a significant amount of time engaged in various screen-based activities, including watching videos, playing games, and browsing the internet. However, the extent to which screen time influences academic achievement remains a topic of debate and investigation. Understanding the relationship between screen time and academic achievement among elementary school students is essential for educators, parents, and policymakers seeking to optimize children's learning experiences

and outcomes. While some research suggests that excessive screen time may be detrimental to academic performance, other studies have found mixed or inconclusive results. This cross-sectional analysis aims to contribute to this body of knowledge by examining the associations between screen time and academic achievement among elementary school students. By utilizing data collected from a diverse sample of students, this study seeks to elucidate the nature and strength of these relationships while controlling for potential confounding variables such as socioeconomic status and parental involvement. The findings from this study have the potential to inform evidence-based strategies for promoting healthy screen habits and optimizing academic outcomes among elementary school students. By gaining a better understanding of the complex interplay between screen time and academic achievement, educators and parents can develop targeted interventions and support mechanisms to ensure that children's screen use aligns with their educational goals and overall well-being.

Academic achievement measures for this topic refers to the methods used to assess students' performance in academic domains such as literacy, numeracy, and other subject areas. These measures provide insight into students' academic progress and outcomes, which can then be examined in relation to their screen time usage.

#### Key components of academic achievement measures may include:

1. **Standardized Test Scores:** Standardized tests are commonly used to assess students' academic proficiency in core subjects such as reading, mathematics, and language arts. These tests provide quantitative measures of students' knowledge and skills relative to national or state educational standards. Examples of standardized tests include the SAT, ACT, state assessments (e.g., PARCC, SBAC), and school-administered assessments.
2. **Grades:** Grades assigned by teachers in various subject areas serve as another indicator of students' academic achievement. Grades may be based on assessments such as quizzes, homework assignments, projects, and exams. Analyzing students' grades allows for a more comprehensive assessment of their performance across different academic domains and provides insight into their overall academic progress.
3. **Attendance Records:** Attendance records can also be considered as an indirect measure of academic achievement, as regular attendance is often associated with better academic outcomes. Examining students' attendance patterns alongside their screen time usage can provide additional context for understanding the relationship between screen time and academic achievement.
4. **Teacher Ratings or Observations:** In addition to quantitative measures, qualitative assessments such as teacher ratings or observations may be used to evaluate students' academic performance. Teachers' subjective assessments of students' classroom behavior, engagement, and participation can complement quantitative measures of academic achievement.

Here are some common gaps and limitations found in the literature on the relationship between screen time and academic achievement among elementary school students. Many existing studies in this area rely on cross-sectional designs, which provide snapshots of data at a single point in time. Longitudinal studies that track students' screen time usage and academic achievement over an extended period are needed to establish causal relationships and identify potential developmental trajectories. There is considerable variability in how screen time and academic achievement are measured across studies, making it challenging to compare findings and draw conclusions. Standardized measures and assessment protocols would enhance the consistency and reliability of research in this field. The majority of research on screen time and academic achievement has focused on general populations of elementary school students, often overlooking diverse or marginalized groups. Studies that examine the relationship within specific subpopulations, such as students from low-income families or those with learning disabilities, are needed to understand how these factors may influence outcomes. While some studies have identified associations between screen time and academic achievement, the underlying mechanisms driving these relationships remain poorly understood. Future research should explore potential mediating and moderating factors, such as

cognitive functioning, sleep quality, and parental involvement, to elucidate the pathways through which screen time may impact academic outcomes. Many studies assume a unidirectional relationship between screen time and academic achievement, with screen time influencing academic outcomes. However, there may be bidirectional effects, whereby academic demands and performance also influence screen time usage. Future research should employ sophisticated statistical techniques to disentangle these complex relationships. Existing guidelines and recommendations regarding screen time limits for children vary widely across organizations and countries. More research is needed to establish evidence-based guidelines that consider individual differences, developmental stages, and contextual factors. While there is a growing recognition of the potential impact of excessive screen time on academic achievement, there is a paucity of intervention studies aimed at mitigating these effects. Future research should develop and evaluate interventions that promote healthy screen habits and optimize academic outcomes among elementary school students.

The educational implications of the relationship between screen time and academic achievement among elementary school students are substantial and multifaceted. As digital devices become increasingly prevalent in children's lives, educators, parents, and policymakers must consider how screen time impacts learning outcomes. One key implication is the need for curriculum development that integrates digital literacy and media literacy skills. By teaching students critical thinking skills to evaluate online information and promoting responsible digital citizenship, schools can empower students to navigate the digital landscape responsibly. Additionally, parental education is crucial in reinforcing healthy screen habits at home. Schools can provide resources and workshops to educate parents about the potential impact of excessive screen time on academic achievement and overall well-being. Collaboration with health organizations and policymakers is essential in developing evidence-based guidelines for screen time usage among elementary school students, taking into account developmental stages, individual needs, and educational objectives. Moreover, schools can promote a culture of digital citizenship by incorporating lessons and activities that emphasize responsible online behavior and ethical technology use. Integrating technology into instruction can enhance learning experiences, but educators must receive ongoing professional development to effectively leverage digital tools while mitigating potential negative effects on academic achievement. Ultimately, addressing the educational implications of screen time requires a collaborative effort among stakeholders to promote digital literacy, foster responsible screen habits, and integrate technology in ways that support students' academic success and well-being. The practical implications stemming from the relationship between screen time and academic achievement among elementary school students are paramount, influencing the actions of educators, parents, and policymakers alike. Establishing clear screen time guidelines emerges as a crucial step, requiring collaboration between educators and parents to delineate appropriate usage boundaries that consider factors such as age, developmental stage, and educational objectives. Monitoring screen time usage becomes imperative, with educators and parents utilizing parental control tools and setting limits to ensure adherence to established guidelines, particularly during homework and study sessions. Encouraging alternative activities that stimulate academic engagement while minimizing screen dependency becomes essential, with educators promoting outdoor play, creative endeavors, and hands-on learning experiences as viable alternatives. Educating students about healthy screen habits emerges as a priority, necessitating the integration of lessons and activities that raise awareness about responsible technology use and the potential consequences of excessive screen time. Schools can play a pivotal role in providing support and resources to students and families grappling with screen time issues, offering counseling services, parent education workshops, and digital literacy programs aimed at fostering responsible technology use. Collaboration with technology companies enables the development of tools and resources that promote positive digital behaviors and support academic learning, while policymakers can advocate for policy changes to address screen time concerns in educational settings, including implementing screen time guidelines and allocating funding for digital literacy initiatives. Overall, the practical implications underscore the necessity of collective action among stakeholders to promote responsible screen habits and enhance academic outcomes for elementary school students in an increasingly digital world.

The relationship between screen time and academic achievement among elementary school students carries significant policy implications that warrant attention from policymakers at various levels of government. Here are some key policy implications:

1. **Development of Screen Time Guidelines:** Policymakers can collaborate with educational experts, health professionals, and technology stakeholders to develop evidence-based guidelines for screen time usage in educational settings. These guidelines should consider age-appropriate recommendations, balancing screen time with other activities that promote academic achievement and overall well-being.
2. **Integration of Digital Literacy in Curriculum Standards:** Policymakers can advocate for the integration of digital literacy and media literacy skills into educational curriculum standards. By incorporating these skills into core subjects such as language arts and social studies, schools can equip students with the critical thinking skills needed to navigate the digital landscape responsibly.
3. **Support for Teacher Training and Professional Development:** Policymakers can allocate funding for teacher training and professional development programs that focus on integrating technology into instruction while mitigating potential negative effects on academic achievement. Providing educators with the necessary skills and resources will enable them to leverage technology effectively in support of student learning.
4. **Investment in Digital Infrastructure:** Policymakers can prioritize investment in digital infrastructure to ensure equitable access to technology and internet connectivity for all students, regardless of socioeconomic background. This includes providing funding for devices, broadband access, and digital resources to support learning both in and out of the classroom.
5. **Promotion of Research and Evaluation:** Policymakers can support research and evaluation efforts to better understand the impact of screen time on academic achievement and identify effective strategies for promoting healthy screen habits among students. Funding research initiatives and collaborating with academic institutions will help generate evidence-based recommendations for policy and practice.
6. **Regulation of Commercial Influences:** Policymakers can advocate for regulations that limit the influence of commercial interests on children's screen time habits. This may include restrictions on advertising targeted at children, transparency requirements for data collection practices, and safeguards to protect children's privacy online.
7. **Community Engagement and Partnerships:** Policymakers can facilitate community engagement and partnerships to address screen time issues holistically. By bringing together stakeholders from education, healthcare, technology, and community organizations, policymakers can develop comprehensive strategies that promote digital well-being and academic success for all students.

## CONCLUSION

In conclusion, the relationship between screen time and academic achievement among elementary school students carries significant implications for educators, parents, policymakers, and other stakeholders invested in children's well-being and educational success. Through a comprehensive examination of the literature, it is evident that while digital technology offers numerous benefits for learning and engagement, excessive screen time may also pose challenges to academic achievement and overall development.

As our understanding of this relationship continues to evolve, it is imperative that proactive measures be taken to address screen time issues in educational settings. This includes the development of evidence-based guidelines, integration of digital literacy into curriculum standards, investment in digital infrastructure, and support for teacher training and professional development. Additionally, efforts to regulate commercial influences, promote research and evaluation, and foster community engagement are essential for creating environments that promote responsible technology use and support the academic success of all students.

Moving forward, collaborative efforts among educators, parents, policymakers, health professionals, and technology stakeholders will be crucial in addressing screen time issues holistically.

By prioritizing evidence-based policies and practices, fostering digital citizenship, and promoting healthy screen habits, we can create learning environments that empower students to thrive academically, socially, and emotionally in today's digital age. Ultimately, the goal is to ensure that screen time serves as a tool for learning and enrichment, rather than a barrier to academic achievement and well-being. Through collective action and commitment to promoting digital well-being, we can create a brighter future for the next generation of learners.

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