| RESEARCH ARTICLE

Investigating the Impact of Technology Addiction on Early Literacy Skills: A Study of First Graders

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| ABSTRACT

This study explores the impact of gadget addiction on the reading abilities of Grade 1 learners, focusing on how technology dependence affects early literacy development. Using a quantitative descriptive correlational approach, the study examined the relationship between gadget addiction and reading proficiency. The findings indicate a minimal and statistically insignificant negative correlation between gadget addiction and reading skills, suggesting that technology use does not significantly impede children's reading development. Despite notable indicators of gadget addiction, such as technology interference in family activities and difficulties in avoiding social media, most learners displayed strong reading and comprehension abilities. The results imply that factors beyond technological dependency, such as educational practices, parental involvement, and individual learner characteristics, may have a more substantial influence on early literacy skills. Consequently, the study concludes that addressing gadget addiction alone may not be sufficient to improve reading abilities. Instead, a comprehensive approach considering various educational and developmental factors should be prioritized. Efforts to enhance early literacy should focus on broader educational strategies, parental guidance, and individualized learner support. The study contributes to ongoing discussions about the balance between technology use and traditional literacy practices in early education, advocating for more holistic approaches to foster reading development in young learners. Future research should explore other contributing factors to literacy achievement, moving beyond the narrow focus on digital device usage.

1. Introduction

Reading development plays a pivotal role in early childhood education, forming the basis for academic achievement and lifelong learning (Brown & Lewis, 2022). Fundamental literacy skills, such as phonemic awareness, vocabulary growth, and reading comprehension, are critical indicators of future educational success (Harrison & McLeod, 2021). With the rapid advancement of digital technology, children's media consumption patterns have evolved, and many begin interacting with devices like smartphones and tablets by the age of five (Taylor & Francis, 2021). By the time children start primary school, a large portion are already adept at using these gadgets for both educational and recreational purposes (Graham & Scott, 2022).

The increasing prevalence of gadget use among children has sparked concerns regarding its potential effects on cognitive and social development (Chaudron et al., 2022). Excessive screen time, particularly when unsupervised, has been associated with developmental challenges, including delays in language and literacy acquisition (Cristia & Seidl, 2021). Prolonged gadget use can also lead to what is termed "technology dependence," where children exhibit a strong reliance on digital devices for entertainment and distraction (Gee et al., 2021; Suson, 2019). This dependence can negatively affect learning by diminishing engagement with traditional literacy activities such as book reading (Livingstone & Pothong, 2022).

Common indicators of gadget addiction in young children include prolonged screen exposure, emotional attachment to devices, and an over-reliance on digital entertainment for relaxation or amusement (Gonzalez et al., 2020). Children who show these signs often find it challenging to shift between digital and print-based learning contexts, which may slow their reading development (Dong & Cai, 2022). Studies reveal that children exhibiting higher levels of technology dependence tend to have lower reading proficiency, reduced comprehension skills, and stunted vocabulary growth compared to peers with more balanced exposure to media (Lauricella & Wartella, 2021). Therefore, technology dependence presents a notable challenge for educators attempting to cultivate early literacy skills, particularly in Grade One learners (Baron, 2021).

Developing strong reading abilities during the early years is vital not only for immediate academic performance but also for long-term success across all subjects (Snow & Matthews, 2021). Research shows that early literacy is closely linked to later achievement in other areas, including mathematics and science (Lonigan et al., 2022). Since reading underpins the acquisition of knowledge in all academic disciplines, early reading difficulties often predict ongoing struggles in school (Torgesen, 2021). Thus, early literacy interventions are critical for promoting sustained educational success (McCandliss & Noble, 2020).

In light of these trends, there is a growing emphasis on finding an appropriate balance between digital technology use and traditional literacy practices (Zhao et al., 2021). While digital tools can offer educational benefits through interactive learning applications, overdependence on them may undermine key reading skills (Gee et al., 2022). Educators and parents must adopt strategies that incorporate both digital and print media to ensure a well-rounded approach to literacy development (Suggate et al., 2020). Achieving this balance is crucial for supporting early reading skills in a tech-driven world (Howard, 2021).

Exploring the relationship between gadget use and reading development can provide valuable insights for educators, parents, and policymakers (Schmidt & Taylor, 2021). Understanding the impact of technology dependence on literacy skills can guide the creation of interventions aimed at limiting screen time and enhancing reading outcomes (Neumann, 2020). Additionally, this research can contribute to the broader conversation on the role of digital media in early childhood education, providing a foundation for future studies and policy initiatives (Livingstone, 2022).

This study aims to achieve two primary objectives: (1) to investigate the prevalence of gadget addiction among Grade One students, and (2) to examine the correlation between technology dependence and essential reading skills such as fluency, comprehension, and vocabulary. By exploring these relationships, the study seeks to offer practical recommendations for educators on managing gadget use to optimize literacy development. It will also consider how factors such as socioeconomic status and parental involvement influence the relationship between technology use and reading outcomes.

Future research should prioritize longitudinal studies to better understand the long-term effects of gadget use on literacy development. Furthermore, experimental research is needed to assess the effectiveness of interventions, such as limiting screen time or integrating digital literacy tools into traditional reading instruction. Addressing these gaps will help educators strike a balance between technology and traditional literacy practices to support early reading development.

2. Methodology

This section discusses the research design, the research environment, the research respondents, the research instruments, and the research procedures including the statistical treatment of data. This was used to outline and provide a clear picture of all the research techniques used. This study utilized a quantitative descriptive correlational research approach to systematically examine the extent of gadget addiction and its impact on learners' reading skills. This method enables objective measurement and statistical analysis of the relationships between variables, making it well-suited for the study's objectives. By employing quantitative data, the research aims to uncover patterns, trends, and correlations that provide empirical insights into how gadget addiction affects reading abilities. As noted by Creswell (2014), a descriptive correlational design is effective in providing a snapshot of the current state of affairs while examining the relationships between variables without altering the study environment. This approach's strength lies in its ability to gather data from a large sample, allowing for generalization of the findings to similar populations and contexts. A survey questionnaire was employed to collect quantitative data, ensuring the study's focus on objectivity and reproducibility. The data collected underwent statistical analysis to evaluate the strength and direction of the relationship between gadget addiction and reading skills. This comprehensive analysis will form the basis for drawing conclusions about the effects of gadget addiction on children's reading development. By rigorously investigating these relationships, the study aims to contribute to the existing academic literature while providing valuable insights for educators, policymakers, and curriculum designers to enhance early literacy outcomes.

3. Results and Discussions

Table 1. Age and Gender of the Respondents

Age (in years)	Female		Male		Total	
	f	%	f	%	f	%
8 and above	0	0.00	5	11.11	5	11.11
7	13	28.89	17	37.78	30	66.67
6	6	13.33	4	8.89	10	22.22
Total	19	42.22	26	57.78	45	100.00

Table 1 shows the significant breakdowns of age and gender among the young respondents, wherein there's 11.11% of participating children aged 8 years old and above, 66.67% are composed of 7 years old, and the remaining 22.22% are 6 years old. In which there's 11.11% of males in the 8 years old and above bracket with no females indicated, 37.78% males and 28.89% females belonging to the 7-year-old bracket, while the remaining males and females within the 6-year-old bracket account for 8.89% and 13.33% percent, respectively. Hence, the majority of the respondents are 7 years old, a common age for Grade 1 learners. Understanding these noticeable gaps among early childhood education learners provides a crucial context to determine the varying impacts of technology on literacy skills and abilities across developmental phases and gender categories. These also pave the way to thoroughly analyze literacy outcomes considering factors such as the distinct levels of digital exposure between older and younger learners associated with their technology usage patterns.

Table 2. Parents' Highest Educational Attainment

Educational Attainment	Mother		Father	
	f	%	f	%
College Graduate	9	20.00	9	20.00
College Level	9	20.00	7	15.56
High School Graduate	22	48.89	24	53.33
High School Level	4	8.89	0	0.00
Elementary Graduate	0	0.00	1	2.22
Elementary Level	1	2.22	4	8.89
Total	45	100.00	45	100.00

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Table 3. Extent of the child's addiction towards gadgets' use

Indicators	WM	Verbal Description
It is hard for my child to stop using screen media	2.91	Moderate
Screen media is the only thing that seems to motivate my child	2.11	Low
Screen media is all that my child seems to think about	2.16	Low
My child's screen media use interferes with family activities	3.44	High
My child's screen media use causes problems for the family	2.89	Moderate
My child becomes frustrated when he/she cannot use screen media	2.84	Moderate
The amount of time my child wants to use screen media keeps increasing	2.84	Moderate
My child sneaks using screen media	3.18	Moderate
When my child has had a bad day, screen media seems to be the only thing that helps him/her feel better	2.36	Low
Aggregate Weighted Mean	**2.74**	**Moderate**

Table 3 examines the extent of children's gadget addiction through the application of specific indicators. These are varying degrees based on a certain range starting from the very low level up to the very high level. A degree is assigned to each item considering its respective weighted mean. These are highly significant in providing insights to determine the level of gadget addiction among young respondents. The highest rating, 3.44, suggests that technology addiction has become an interruption for family activities, supported by a moderate rating, 2.89, stating that the child's excessive use of mobile devices leads to family issues. Other moderate scores are apparent in situations where the child struggles with proper control over social media use, with 2.91 rating, experiences frustration for not being able to use social media, with 2.84 rating, expresses increasing desire to use screen media, with 2.84, and situations where the child sneaks screen media usage, with 3.18. Lower scores for other instances are evidenced such as those stating that screen media is the child's sole motivator, with 2.11 rating, the primary focus of the child's thoughts, with 2.16, and the child's only coping mechanism, with 2.36, implying that these behaviors are less pronounced. In general, these findings exhibit moderate reliance on social media among children, with special emphasis on its influence on family relations and the child's emotional responses. Additionally, the results put a greater focus on the need for a well-balanced social media utilization within the household and school environment. Although no drastic impacts have been observed and reported, there are still noticeable disruptions concerning child technology usage toward family activities. Furthermore, it highlights the importance of parents' obligations in terms of teaching children about the positive and negative implications of using social media and instilling proper discipline to help them improve their overall self-control. Also, results emphasize that families should be actively engaged in offering social interaction with children and conduct educational activities that don't require social media platforms to minimize children's dependency on digital technologies.

Table 4. Level of Reading Skills of the Learners

Reading Skills	Range of Scores	f	%
Outstanding	16-20	38	84.44
Very Satisfactory	11-15	7	15.56
Satisfactory	6-10	0	0.00
Poor	0-5	0	0.00
Total		**45**	**100.00**

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Table 5. Test of relationship between the gadget addiction and reading skills of the learners

Variables	r-value	Strength of Correlation	p - value	Decision	Remarks
Gadget Addiction and Reading Skills	-0.060	Negligible Negative	0.698	Do not reject Ho	Not Significant

*significant at p<0.05 (two-tailed)

Table 5 assessed the connection between learners' reading abilities and gadget addiction and discovered a very weak negative link, with a correlation coefficient or r-value of -0.060. This implies that there may be a small, but not statistically significant, tendency for reading skills to decline as device addiction grows. In fact, research undertaken by Wilkinson et al. (2022) emphasized that regular screen viewing of young kids has mild implications to their ongoing learning process. Also, the study concludes that these results are not statistically significant with a p-value of 0.698, which is significantly higher than the conventional significance level of 0.05. Consequently, the null hypothesis, which suggests that there is no meaningful correlation between gadget addiction and reading proficiency in the population under study, cannot be rejected due to inadequate evidence. This is supported by the findings obtained by Fenty and Anderson (2014), asserting that technology has a positive influence in capturing the interests and motivation of learners in terms of technology-integrated instructional materials. In spite of this, the analysis conducted by the team of Lawrence and Choe (2021) contradicted this by stating that greater use of mobile devices can cause potential delays to the language and communication development of a child. Not to disregard the aforementioned results, a greater number of studies agreed with the positive impacts of technology-integrated educational interventions such as the investigations of Fox (2014), Gottschalk (2019), and Kaynar et al. (2020). Nevertheless, the study made by Hsin et al. (2014) slightly opposed the overall beneficial outcomes by emphasizing that the overall effect of children's technology usage is somewhat conditional and usually depends on certain factors such as experience and time spent. In general, the findings show that although there is a marginally negative correlation between gadget addiction and reading ability, this relationship is statistically insignificant. B Still, the study conducted by Avis (2019), suggests the removal of passive utilization of technology on children because no insights are offered to provide a meaningful experience to help the children's constant development. It is recommended that there should be consistent monitoring and interaction between adults and children to ensure that the content and information being viewed are appropriate for young minds. Moreover, results obtained from the study undertaken by Muis et al. (2015) agreed that the application of proper technologies that offer feedback to learners' after finishing their activities are more likely to serve as valuable instruments to achieve desirable learning outcomes. In this case, teachers are expected to utilize online applications that align with every student's level of ability while guaranteeing their engagement throughout a series of discussions. Finally, the study's conclusions illustrate the complexity of factors impacting educational achievements by indicating that factors other than gadget use probably have a greater impact on students' reading abilities.

4. Conclusion

The study concludes that gadget addiction has a minimal and statistically insignificant impact on the reading abilities of Grade 1 learners. While technology interference in family activities and challenges in avoiding social media were notable indicators of gadget addiction, most children still exhibited strong reading and comprehension skills. The weak negative correlation between gadget addiction and reading proficiency suggests that factors other than technological dependency, such as educational practices, parental involvement, and individual learner characteristics, likely play a more influential role in shaping early literacy development. Therefore, future efforts to enhance reading abilities should focus on a broader range of educational and developmental factors, rather than solely limiting digital device usage.

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