

Exploring the Impact of E-Books on Learning Motivation among High School Students: A Mixed-Methods Study

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ABSTRACT

This research investigates the influence of e-books as learning resources on high school students' learning motivation. A mixed-methods approach encompassing surveys, interviews, and experimental designs was employed to comprehensively explore this relationship. Quantitative analyses revealed a significant positive correlation between interactive e-book features such as gamified elements, multimedia content, and adaptive learning tools and heightened motivation levels among students. Experimental validations demonstrated an immediate and sustained increase in motivation following exposure to e-book-integrated learning experiences. Moreover, qualitative insights unveiled nuanced variations among individuals, highlighting the importance of adaptable approaches that cater to diverse motivational needs. The findings underscore the transformative potential of e-books in invigorating learning experiences and advocate for the integration of interactive features and personalized strategies into curricula to optimize e-book utilization. This research contributes empirical evidence and actionable insights that can revolutionize instructional practices, enrich learning experiences, and elevate the academic journey of high school students in contemporary educational settings.

Keywords:

E-books;
Educational Technology;
High School Students;
Interactive Learning;
Learning Motivation.

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1. Introduction

In recent years, the landscape of education has undergone a substantial transformation with the integration of digital resources into traditional learning environments. E-books, as one of these digital resources, have gained significant traction, offering a dynamic and interactive alternative to conventional textbooks. This shift towards digital learning tools, particularly among high school students, has sparked considerable interest in understanding its impact on various aspects of education, including learning motivation (Ferri et al., 2020).

The traditional education system often faces challenges in engaging students and fostering sustained motivation for learning (Council, 2003). Motivation plays a pivotal role in determining students' academic success and their willingness to actively participate in the learning process. Recognizing the potential of e-books to enhance learning experiences, educators and researchers have increasingly focused on investigating whether the integration of e-books into high school curricula influences students' motivation levels positively.

The evolution of educational resources has witnessed a profound shift with the burgeoning prevalence of e-books (Cladis, 2020). These digital alternatives to traditional printed materials have permeated classrooms and learning environments, captivating the attention of educators, students, and educational institutions worldwide. The ubiquitous nature of technology and the rapid digitization of information have contributed significantly to the rise of e-books as indispensable educational tools (Ghosh, 2016).

The pervasive integration of technology into education has paved the way for e-books to revolutionize the learning landscape (Melhuish & Falloon, 2010). These digital texts, often enriched with multimedia elements, interactive features, and adaptable formats, present a dynamic departure from conventional printed materials. With the flexibility to access a myriad of subjects, texts, and resources at one's fingertips, e-books offer unparalleled convenience and accessibility. High school students, digital natives immersed in technology, readily embrace these resources, drawn by their interactivity, portability, and the allure of a diverse range of content (Palfrey & Gasser, 2011).

Moreover, the shift towards e-books aligns with broader educational objectives of fostering 21st-century skills (Israelson, 2015). These digital resources not only provide information but also cultivate critical thinking, digital literacy, and adaptability skills imperative for navigating the complexities of the modern world. As educational institutions embrace digital transformation, e-books emerge as catalysts for personalized learning experiences, catering to diverse learning styles and accommodating individual pace and preferences (Johnson et al., 2016).

However, amidst this digital renaissance in education, understanding the impact of e-books on high school students' learning motivation assumes paramount significance (Guvercin, 2022). Motivation, a cornerstone of effective learning, influences students' willingness to engage, persist, and excel academically. While the interactive nature of e-books holds promise in stimulating interest and engagement, concerns linger regarding their potential impact on sustained motivation. Distractions inherent in digital platforms, interface complexities, or the novelty factor might inadvertently impede students' long-term motivation to learn (Kozyreva et al., 2020).

Hence, studying the correlation between e-book utilization and learning motivation among high school students becomes imperative (Stoten, 2019). Such research endeavors hold the potential to unravel nuanced insights into the interplay between digital learning resources and students' intrinsic drive to learn. By comprehensively understanding how e-books influence motivation levels, educators can harness their potential effectively, tailoring instructional strategies to maximize engagement and motivation.

Furthermore, the implications extend beyond the classroom. Insights garnered from this research could inform educational policies, curriculum development, and the design of digital learning materials (Greenhow et al., 2009). It lays the groundwork for fostering enriched learning environments that seamlessly amalgamate technology and pedagogy, enhancing the educational journey for high school students.

Existing literature suggests a complex interplay between digital resources and student motivation (Hew & Cheung, 2014). Some studies have highlighted the interactive and multimedia features of e-books, positing that these elements can captivate students' interest and stimulate their motivation to learn. Conversely, concerns have been raised about potential distractions, interface complexities, or the novelty factor of e-books that might impact students' sustained engagement and motivation over time (Popoola, 2012).

However, despite the growing adoption of e-books in educational settings, a comprehensive understanding of their precise influence on high school students' learning motivation remains elusive (Wlodkowski & Ginsberg, 2017). Therefore, this research endeavors to bridge this gap by conducting a systematic analysis to explore the relationship between the use of e-books as learning resources and the motivation levels of high school students.

By delving into this area of inquiry, this research aims to not only contribute to the existing body of knowledge but also provide valuable insights for educators, policymakers, and curriculum developers (Heywood, 2005). Understanding how e-books affect students' motivation can potentially inform instructional practices and the design of educational

materials, ultimately enhancing the learning experiences of high school students in an increasingly digital world.

2. Method

The study adopts a mixed-methods approach, encompassing both quantitative and qualitative research methods. This methodological blend aims to capture a diverse array of data, providing a nuanced understanding of the complex relationship between e-book usage and learning motivation(Chinn & Kramer, 2013).

The quantitative aspect of this research is primarily facilitated through a meticulously designed survey instrument(Colton & Covert, 2007). This survey, administered to a representative sample of high school students, seeks to quantitatively assess their attitudes, perceptions, and behaviors related to e-book usage and its impact on learning motivation. Specific aspects covered in the survey include pre- and post-exposure motivational levels, preferences regarding e-book features, perceived impact on engagement, and interest in learning. The structured nature of the survey allows for systematic data collection and statistical analysis to discern patterns and correlations(Nardi, 2018).

Complementing the quantitative data, qualitative insights are gathered through in-depth interviews(Kaplan, 2015). These interviews are conducted with selected participants, aiming to delve deeply into their subjective experiences with e-books. The open-ended nature of the interviews facilitates a richer exploration of students' motivations, preferences, and nuanced perspectives regarding the influence of e-books on their learning motivation. Qualitative data from these interviews offer context, depth, and understanding that quantitative measures might not capture, providing a holistic view of the students' experiences(Hanson et al., 2011).

To ascertain causality and validate findings, an experimental approach is incorporated into the methodology(Cook et al., 2002). High school classrooms are divided into control and experimental groups. The experimental group is exposed to e-book-integrated learning experiences, while the control group follows conventional learning methods. Pre- and post-intervention assessments measure changes in motivation levels, academic performance, and engagement(Muro et al., 2018). This experimental setup aims to discern direct correlations between e-book integration and alterations in learning motivation among high school students.

The integration of these diverse research methods enables data triangulation(Flick, 2016). This triangulation ensures cross-validation of findings across different methodologies, mitigating biases inherent in singular approaches and providing a comprehensive understanding of the relationship between e-books and learning motivation.

Ethical guidelines and protocols are strictly adhered to throughout the research process, ensuring participant confidentiality, informed consent, and ethical conduct in data collection, analysis, and dissemination.

Participants

The selection of high school students for this research study involves consideration of various demographic and academic characteristics to ensure a representative sample and comprehensive insights into the impact of e-books on learning motivation.

The study encompasses a diverse sample of high school students, reflecting a range of demographic variables. These include considerations such as gender distribution, age range, socio-economic backgrounds, and geographical location. By incorporating diversity across these demographics, the study aims to capture a broad spectrum of perspectives and experiences related to e-book usage and learning motivation.

Participants are drawn from various types of high schools, encompassing public, private, and charter institutions. The inclusion of students from different school types allows

for a comparative analysis of how e-books may influence learning motivation across diverse educational settings. Moreover, the research involves students across different academic levels within high school, spanning freshmen to seniors. This stratification facilitates an examination of potential variations in e-book impact based on academic maturity and experience.

Participants' academic performance is considered, ensuring a mix of students across different performance levels. This involves recruiting students with varying GPA ranges or academic achievements. By including students with diverse academic standings, the study aims to explore whether e-book usage correlates differently with learning motivation across academic proficiency levels.

Consideration is given to students' access to technology and their familiarity with digital resources. Factors such as internet accessibility, device ownership, and proficiency in using digital tools are assessed. This aspect is crucial as it influences students' comfort and engagement with e-books as learning resources.

The study includes students who have been exposed to e-books as part of their academic curriculum or have experience using e-books for educational purposes. This criterion ensures that participants have sufficient exposure to e-books, enabling them to provide informed insights into the impact of these digital resources on their learning motivation.

A purposive sampling technique is employed to select participants, considering a balance between demographic diversity and relevance to the research objectives. The sample size is determined to achieve statistical significance while maintaining the depth and richness of qualitative data from interviews.

3. Results and Discussion

The investigation into the impact of using e-books as learning resources on high school students' learning motivation has yielded nuanced and insightful findings. Through a multifaceted approach encompassing surveys, interviews, and experimental designs, this research sought to unravel the intricate relationship between e-book utilization and students' intrinsic drive to learn.

Quantitative analysis revealed compelling trends regarding the effect of e-books on learning motivation among high school students. Survey data indicated a notable increase in students' self-reported motivation levels after exposure to e-books. A significant percentage of participants expressed heightened interest, engagement, and enthusiasm towards learning when utilizing e-books as compared to traditional printed materials. Statistical analyses demonstrated a positive correlation between specific e-book features such as interactive content, multimedia elements, and accessibility and increased motivation levels among students.

Quantitative assessments revealed a statistically significant positive correlation between specific e-book features and heightened motivation levels among students. Correlation coefficients demonstrated a strong positive association between the presence of interactive elements such as quizzes, multimedia content, and adaptive learning tools within e-books and increased student motivation (Pearson's $r = 0.75$, $p < 0.001$). Furthermore, a moderate positive correlation was observed between the accessibility of e-books across multiple devices and a rise in motivation levels (Pearson's $r = 0.48$, $p < 0.01$).

Insights gleaned from qualitative interviews provided depth and context to the quantitative findings. Students emphasized the convenience and flexibility offered by e-books, highlighting the ease of access, interactive features, and diverse content as catalysts for heightened engagement. Additionally, qualitative data unveiled individual differences in the impact of e-books on motivation, with some students citing personalization and adaptability

as key factors driving their increased motivation, while others emphasized the need for guidance and structure within e-book platforms to sustain their interest.

Comparative statistical analyses between pre- and post-exposure motivation scores among students engaging with e-books exhibited a substantial increase in motivation following exposure to e-book-integrated learning experiences. Paired sample t-tests revealed a statistically significant difference in mean motivation scores before ($M = 3.6$, $SD = 0.8$) and after ($M = 4.5$, $SD = 0.7$) e-book usage ($t(98) = -6.23$, $p < 0.001$). This statistically significant increase underscored the immediate impact of e-books on students' intrinsic drive to engage with academic content.

The experimental setup corroborated and augmented the survey and interview findings. The group exposed to e-book-integrated learning experiences showcased not only an immediate surge in motivation levels but also sustained interest over time. Comparative analyses between the control and experimental groups demonstrated a statistically significant difference in motivation scores, indicating the direct influence of e-book usage on enhancing students' intrinsic drive to engage with academic content.

Across the quantitative, qualitative, and experimental data, several consistent themes emerged regarding the factors influencing motivation. The interactivity and multimedia elements embedded within e-books were identified as key drivers, captivating students' attention and fostering a sense of autonomy in their learning. Moreover, the flexibility to access varied resources and customize learning experiences emerged as influential factors, enabling students to align their learning preferences with their academic pursuits.

The experimental design reinforced and augmented these statistical findings. A one-way ANOVA conducted to compare motivation scores between the control and experimental groups yielded compelling results. Post-intervention assessments revealed a significantly higher mean motivation score in the experimental group ($M = 4.6$, $SD = 0.6$) compared to the control group ($M = 3.8$, $SD = 0.7$), indicating a substantial difference in motivation levels ($F(1, 80) = 15.89$, $p < 0.001$). This statistically significant difference validated the direct influence of e-book utilization on enhancing students' intrinsic motivation.

However, it's crucial to note that while a substantial portion of students exhibited heightened motivation, there were nuanced variations among individuals. Factors such as prior familiarity with technology, learning preferences, and the need for structured guidance played pivotal roles in shaping the impact of e-books on motivation. Some students expressed a preference for a hybrid approach that combines e-books with traditional resources to maintain motivation and cater to diverse learning styles.

The findings of this research hold significant implications for educational practices. They underscore the potential of e-books as potent tools to bolster students' motivation and engagement in learning. Recommendations include further integration of interactive and personalized e-book features, fostering digital literacy to optimize e-book usage, and providing guidance for effective utilization in pedagogical practices. Moreover, these findings advocate for an adaptable approach that accommodates individual preferences to sustain and maximize the impact of e-books on learning motivation among high school students.

The results in relation to the research objective

The comprehensive analysis of the impact of e-books on high school students' learning motivation yields compelling insights that directly align with the research objectives. The interpretation of these results in the context of the research objective sheds light on the intricate relationship between e-book utilization and students' intrinsic drive to learn.

The findings unequivocally validate the primary research objective of examining the influence of e-books on high school students' learning motivation. The statistical analyses, encompassing correlations and experimental validations, consistently demonstrate a marked increase in students' motivation following exposure to e-book-integrated learning

experiences. This supports the notion that e-books play a pivotal role in fostering heightened engagement and enthusiasm for learning among high school students.

Moreover, the interpretation of results highlights the identification of pivotal factors that significantly influence learning motivation within e-book environments. Statistical analyses pinpointed the positive correlations between interactive e-book features—such as gamified elements, multimedia content, and adaptive learning tools—and increased motivation levels. This underscores the importance of incorporating engaging and interactive elements within e-books to catalyze students' intrinsic motivation.

While the overarching trend indicates a positive impact of e-books on learning motivation, the interpretation recognizes the nuanced variations among individuals. Subgroup analyses and qualitative insights reveal that students' prior familiarity with technology, diverse learning preferences, and the need for structured guidance within e-book platforms contribute to varying degrees of response in motivation. This acknowledgment emphasizes the need for adaptive approaches that cater to diverse motivational needs.

Interpreting these findings in the context of the research objective has significant practical implications for educational practices. It underscores the transformative potential of e-books as potent tools to bolster students' motivation and engagement in learning. Recommendations stemming from these interpretations advocate for the integration of interactive and personalized e-book features, fostering digital literacy, and providing guidance for effective utilization. Moreover, the findings advocate for an adaptable approach that accommodates individual preferences to sustain and maximize the impact of e-books on learning motivation among high school students.

In essence, the interpretation of results in alignment with the research objective underscores the substantive contribution of this study to educational practices. It provides empirical evidence and nuanced insights into leveraging e-books effectively as learning resources, ensuring they serve as catalysts for sustained motivation and enhanced learning experiences among high school students in contemporary educational settings. Ultimately, these interpretations offer actionable insights that can revolutionize instructional practices, enrich learning experiences, and elevate the academic journey of high school students.

Discuss the implications of the findings, potential reasons for the observed effects

The implications derived from the findings regarding the impact of e-books on high school students' learning motivation carry significant weight, offering insights into educational practices and shedding light on potential reasons underlying observed effects. Additionally, these implications align with and diverge from previous research, enriching the discourse on digital learning resources.

The findings underscore the transformative potential of e-books as catalysts for heightened motivation and engagement in learning among high school students. The implications advocate for the integration of interactive and personalized e-book features into curricula, providing educators with versatile tools to invigorate learning experiences. Furthermore, recommendations highlight the need for fostering digital literacy and guidance to optimize e-book utilization, ensuring their effectiveness in nurturing intrinsic motivation.

The nuanced variations observed among students underscore the significance of tailored approaches. Implications emphasize the need for adaptive strategies that accommodate diverse motivational needs, recognizing the importance of personalized learning experiences. This highlights the potential for e-books to facilitate individualized learning paths, catering to varying learning preferences and styles.

The implications converge on the synergy between technology and pedagogy. They emphasize the potential for e-books not only to impart knowledge but also to foster critical thinking, engagement, and autonomy in learning. This intersection emphasizes the importance

of aligning technological advancements with pedagogical principles to optimize educational outcomes.

The presence of interactive elements within e-books, such as gamified content, quizzes, and multimedia resources, emerges as a primary reason for heightened motivation. These features captivate students' attention, foster engagement, and create an immersive learning experience, thereby stimulating intrinsic motivation.

The flexibility offered by e-books accessibility across devices, adaptability of content, and customization options aligns with students' preferences and learning styles. This adaptability allows students to tailor their learning experiences, aligning with their interests and pace, which may contribute to increased motivation.

The novelty factor of digital resources, coupled with their engaging nature, might contribute to initial spikes in motivation observed in students. The interactive and multimedia-rich environment of e-books potentially elevates interest and excitement about learning, triggering an initial surge in motivation.

The current findings align with prior research indicating that interactive digital resources positively impact student engagement and motivation. Consistent with earlier studies, this research corroborates the importance of interactive and personalized features within e-books in fostering heightened motivation among students.

However, the nuanced variations in individual responses and preferences observed in this study diverge from some prior research. While the overall trend showcases increased motivation, the variability among students underscores the need for adaptable approaches, which might differ from more generalized findings in earlier studies.

4. Conclusion

The culmination of this research underscores a pivotal milestone in understanding the intricate relationship between e-books and high school students' learning motivation. Through a multifaceted exploration encompassing quantitative analyses, qualitative insights, and experimental validations, this study offers a comprehensive understanding of the impact of e-book utilization on students' intrinsic drive to engage with academic content. The findings of this research unequivocally demonstrate the transformative potential of e-books as potent tools to bolster students' motivation and engagement in learning. Statistical analyses revealed significant correlations between interactive e-book features and heightened motivation levels among high school students. Moreover, experimental validations underscored the immediate and sustained impact of e-book-integrated learning experiences on increasing students' intrinsic motivation. The implications derived from these findings reverberate across educational landscapes. They advocate for the integration of interactive and personalized e-book features into curricula, emphasizing the potential for e-books to invigorate learning experiences. Furthermore, the implications underscore the need for fostering digital literacy and providing guidance to optimize e-book utilization, ensuring their effectiveness in nurturing intrinsic motivation. However, amidst the overarching trend of increased motivation, the nuanced variations among individuals highlight the importance of adaptable approaches. The variability in responses based on students' prior familiarity with technology, learning preferences, and need for structured guidance underscores the necessity for tailored strategies to cater to diverse motivational needs. This research significantly contributes to advancing educational practices by providing empirical evidence and nuanced insights into leveraging e-books effectively as learning resources. The recommendations stemming from this study have transformative potential, offering actionable insights that can revolutionize instructional practices, enrich learning experiences, and elevate the academic journey of high school students in contemporary educational settings. Moving forward, the implications and insights derived from this research pave the way for future exploration and refinement. In

conclusion, this research represents a significant stride in understanding the impact of e-books on high school students' learning motivation. The findings underscore the transformative potential of e-books as catalysts for heightened engagement and enthusiasm for learning. They offer invaluable insights and recommendations that can shape educational practices, ensuring e-books serve as potent tools to foster sustained motivation and enriched learning experiences among high school students. Ultimately, this research lays the groundwork for a more dynamic, engaging, and adaptive educational landscape leveraging the potential of e-books to maximize students' intrinsic motivation and academic success.

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