

The impact of digital innovation on the reading skills of secondary school students in Ikere Local Government Area of Ekiti State, Nigeria

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Abstract

This study examined the influence of digital innovation on the reading proficiency of secondary school pupils in the Ikere Local Government Area in Ekiti State. Three objectives directed the investigation. The study employed a descriptive survey research design. The sample comprised 200 respondents selected from five secondary schools through a stratified random selection method. A systematic questionnaire based on a four-point Likert scale was used to collect data, which was then analysed using frequency counts, percentages, and mean scores. The results showed that digital technologies are widely used to teach reading skills, both in and out of the classroom. The study also found that digital innovation helps pupils read and understand texts more effectively, which in turn helps them learn new words. The results also showed that digital tools make reading more engaging, encourage students to read more often, and provide access to a wide selection of current and varied reading materials. There were some minor problems, such as difficulty accessing digital information and getting distracted while reading digitally, but the overall benefits were substantial. The study found that digital innovation is very important for helping high school students improve their reading skills. So, it suggested investing more in digital infrastructure, educating teachers, and making it easier for students to access high-quality digital resources so they can get the most out of digital technologies in reading education.

Keywords: Digital Innovation; Reading Skills; Digital Literacy; Secondary School Students

1. Introduction

Digital innovation in education has changed the way teachers and students used to study and teach. It has introduced new tools and approaches intended to make students more interested in school and help them do better. The use of digital tools in education has been growing worldwide, and many studies have shown how these technologies can be helpful. Digital reading platforms, educational apps, and e-books, for example, have been found to help kids read better, faster, and with more interest. Studies show that interactive e-books can help primary school pupils learn more words and better understand what they read. Chen and Chuang (2023). Digital platforms that make reading more fun have also been shown to encourage pupils to read more, leading to better outcomes such as reading comprehension, fluency, and vocabulary. Studies indicate that language learners are inclined to read online for extended periods compared to offline reading, as they perceive web text as more engaging and stimulating than the content in printed language course books (Korat and Falk, 2019). Websites can also give you more comprehensible input (Krashen, 2018). As mobile devices become more common in poor countries, Wainwright and Allen (2020) argue that now is the time to imagine a future in which mobile devices will be very important in education in those countries.

The incorporation of digital technologies in education in Nigeria is still a work in progress, with steps being taken to close the digital divide. The Nigerian government and numerous educational stakeholders have acknowledged the significance of digital literacy, enacting laws to integrate Information and Communication Technology (ICT) into the

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school curriculum (Federal Ministry of Education, 2019). However, the way these programs are implemented and how well they work vary widely across areas and schools. The goal of bringing digital reading tools to Ikere's secondary schools is to help pupils improve their reading skills by providing fun, interactive ways to do so. These tools include e-books, reading apps, and online resources that can provide personalised learning experiences, instant feedback, and a wide selection of reading materials.

Objectives of the Study

This study evaluates the impact of digital innovation on the reading skills of secondary school students in Ikere Local Government Area of Ekiti State. Specifically, the study seeks to:

- Assess the extent to which digital tools are used in teaching reading skills.
- Evaluate the impact of these tools on students' reading comprehension and fluency.
- Identify the benefits of using digital tools in reading instruction.

1.1. Research Questions

- To what extent are digital tools used in teaching reading skills?
- What is the impact of digital tools on students' reading comprehension and fluency?
- What are the benefits associated with the use of digital tools in reading instruction?

2. Literature Review

Digital Literacy is the knowledge, attitude, and ability of people to use digital tools and facilities in the right way to find, access, manage, integrate, evaluate, analyse, and combine digital resources, build new knowledge, make media expressions, and talk to other people in specific life situations so that they can take constructive social action. (Mangen, Olivier, and Velay, 2019). Schools must teach children to use technology responsibly as the world becomes increasingly digital. Boroughs (2020) argues that screen-based technologies and digital reading devices may shape college and university students' perceptions and interactions with books. This indicates that pupils engaging with digital resources may display varying mental states, attitudes, and perceptions of the content.

Text digitisation has a big effect on academic settings. It changes how students learn, depending on the text's format and the medium through which they read it. Recent research has examined these effects, uncovering intricate influences on comprehension and attention. For example, studies show that reading on screens can make people more likely to daydream and less likely to stay focused on the work at hand than reading printed materials. This change in focus makes it harder to understand what you read. Salmerón and Delgado, 2019; Wolf, 2018. Greene, Yu, and Copeland (2024) similarly endorse the concept that digital literacy necessitates the ability to analyse, synthesise, and compile knowledge from many digital and print sources.

In the digital age we live in, using digital technologies in English as a Foreign Language (EFL) reading lessons has become increasingly vital for helping students improve their reading skills. Digital technologies give you a lot more options and resources than just printing things. These tools can help kids learn more engagingly and dynamically, which makes reading more fun and useful. One of the best things about utilising digital technologies to teach English reading is that they give you access to a wide range of real, up-to-date reading materials from all around the world (Taj et al., 2018). Students can use the internet to find a wide range of digital resources, like blogs, online articles, and e-books written by native English speakers. This exposure to real texts not only helps students better grasp what they read but also helps them appreciate cultural differences and diverse writing styles.

Digital innovation in education has created many new ways to improve teaching and learning. Digital technologies can be very helpful for improving students' reading skills, especially in English (English as a Foreign Language) reading classes. There are many possible benefits, but there are also many problems and restrictions that come with integrating digital tools (Noori, 2021).

There is no doubt that technology can greatly enhance teaching and learning. It can help students learn more, assist teachers in meeting the needs of all their students, no matter what challenges they face, make learning and teaching more interesting, help students develop themselves, and keep up with new technology. However, even with all these benefits, several studies have found that technology may also pose health-related risks and problems with its proper use.

2.1. Theoretical Framework

This study is grounded in Constructivist and Schema theories of reading. John Dewey, Jean Piaget, Lev Vygotsky, and Jerome Bruner all wrote about constructivism. Their ideas have had a huge impact on education and cognitive psychology. Constructivism is especially pertinent to this work due to its learner-centred methodology. The schema theory, proposed by the British psychologist Frederic Bartlett in 1932, applies to the current study. Bartlett utilised the term "body schema," coined by neurologist Henry Head (1861-1940), to conduct several tests in perception, imagery, visualisation, and memory. He posits that individuals utilise various ways to retain concepts, figures, and other information, which they subsequently use to build mental schemas. These schemas are reinforced by personal experiences derived from activities such as reading. Bartlett contended that the entirety of individuals' experiences influences their interpretation of concepts, evaluation of visuals, and appreciation of new knowledge. To put it another way, if the reading material is interesting and the reader's background is interesting, then they will naturally want to read more.

3. Methodology

This study employs a descriptive survey research design suitable for investigating the impact of digital innovation on the development of reading skills, as it allows for the collection and analysis of data from a representative sample to infer conclusions about the population. The target population for the study comprises all secondary school students in Ikere Local Government, including those from both public and private schools who have been exposed to digital tools for reading. Teachers responsible for reading instruction also form part of the study population. A sample size of 200 respondents was selected, comprising 120 male students and 80 female students from five secondary schools. The study sample was selected using stratified random sampling to ensure representation across different school types, genders, and age groups. The study employed a structured questionnaire as its primary data collection instrument. The validated questionnaire was designed on a four-point Likert scale of Strongly Agree (4) to Strongly Disagree (1). The collected data were analysed using descriptive statistics, including frequencies, counts, simple percentages, and weighted means, using SPSS version 26. The decision rule: the mean value ($\bar{X} \geq 2.50$) is significant.

4. Results

Research question 1. To what extent are digital tools used in teaching reading skills?

Table 1 Response to the extent that digital tools are used in teaching reading skills

S/N	Items	SA (%)	A (%)	D (%)	SD (%)	$\bar{X}$	Remark
1.	I often read learning materials using digital devices such as phones, tablets, or computers.	60 (30.0)	74 (37.0)	26 (13.0)	40 (20.0)	2.53	Agreed
2.	Reading applications or educational websites are used during reading lessons.	20 (10.0)	68 (34.0)	88 (44.0)	24 (12.0)	3.42	Agreed
3.	My teachers encourage me to use online resources for reading practice.	96 (48.0)	58 (29.0)	42 (21.0)	4 (2.0)	3.23	Agreed
4.	My school provides access to digital resources that support reading activities.	26 (13.0)	86 (43.0)	72 (36.0)	16 (8.0)	2.54	Agreed
5.	I use digital tools regularly to practice reading outside the classroom.	170 (85.0)	24 (12.0)	2 (1.0)	4 (2.0)	3.80	Agreed
Weighted Mean		15.52					

Total mean = 15.52, Cluster mean = 3.10

Table 1 shows the extent to which digital tools are used in teaching reading skills. The results indicate a cluster mean score of 3.10, which exceeds the acceptable benchmark of 2.50 on the four-point Likert scale. This suggests that, in general, digital tools are widely used in teaching reading skills. The majority of respondents indicated that they use digital tools regularly to practice reading outside the classroom, with a mean value ($\bar{X} = 3.80$) that is the highest. Similarly, most of the respondents indicated that they are encouraged by their teachers to use online resources for reading practice, with a high mean score of ($\bar{X} = 3.23$).

In contrast, the respondents indicated that they often read learning materials on digital devices such as phones, tablets, or computers ($\bar{X} = 2.53$) and that their school provides access to digital resources that support reading activities ($\bar{X} = 2.54$), with recorded comparatively lower mean values. However, the majority of the respondents indicated that reading applications or educational websites are used during reading lessons, with a mean value ($\bar{X} = 3.42$). The findings indicated that digital tools are very instrumental in teaching reading skills in secondary schools.

4.1. Research question

What is the impact of digital tools on students' reading comprehension and fluency?

Table 2 Response to the impact of digital tools on students' reading comprehension and fluency

S/N	Items	SA (%)	A (%)	D (%)	SD (%)	$\bar{X}$	Remark
1.	Using digital reading materials helps me better understand texts.	170 (85.0)	16 (8.0)	14 (7.0)	0 (0.0)	3.78	Agreed
2.	Reading on digital platforms helps me learn new vocabulary.	58 (116.0)	48 (24.0)	24 (12.0)	12 (6.0)	3.42	Agreed
3.	Digital reading materials help me concentrate better during reading tasks.	44 (22.0)	104 (52.0)	42 (21.0)	10 (5.0)	2.60	Agreed
4.	Digital reading platforms make it easier for me to summarize or interpret texts.	38 (19.0)	102 (51.0)	50 (25.0)	10 (5.0)	2.84	Agreed
5.	My reading comprehension has improved since I started using digital reading tools.	78 (39.0)	44 (22.0)	64 (32.0)	14 (7.0)	2.93	Agreed
Weighted Mean		15.57					

Total mean = 15.57, Cluster mean = 3.11

Table 2 shows the analysis of responses to the impact of digital tools on students' reading comprehension and fluency. The results indicate a cluster mean score of 3.11, which exceeds the acceptable benchmark of 2.50 on the four-point Likert scale. This suggests that the impact of digital tools on students' reading comprehension and fluency is relatively high. The majority of respondents indicated that using digital reading materials helped them understand texts better, with a mean value ($\bar{X} = 3.78$). Also, most of the respondents indicated that reading on digital platforms helps them to learn new vocabulary with a high mean score ($\bar{X} = 3.42$).

It was further revealed by most of the respondents that their reading comprehension has improved since they started using digital reading tools, with a mean value ($\bar{X} = 2.93$). Also, it was indicated that digital reading platforms make it easier for students to summarize or interpret text, with a mean value ($\bar{X} = 2.84$). At the same time, it was held that digital reading materials help students concentrate better during a reading task, with a relatively low, non-significant mean value ($\bar{X} = 2.60$). The result indicated that digital tools enhance students' reading comprehension and fluency in secondary schools.

Research question 3. What are the benefits associated with the use of digital tools in reading instruction?

Table 3 Response to the benefits associated with the use of digital tools in reading instruction

S/N	Items	SA (%)	A (%)	D (%)	SD (%)	$\bar{X}$	Remark
1.	Digital reading tools make reading more interesting and enjoyable.	174 (87.0)	26 (13.0)	0 (0.0)	0 (0.0)	3.87	Agreed
2.	Using digital tools motivates me to read more frequently.	142 (71.0)	58 (29.0)	0 (0.0)	0 (0.0)	3.71	Agreed
3.	Digital reading resources make it easier to access current, up-to-date information.	156 (78.0)	42 (21.0)	2 (1.0)	0 (0.0)	3.77	Agreed
4.	Digital reading materials help me develop better study habits.	154 (77.0)	42 (21.0)	2 (1.0)	2 (1.0)	3.74	Agreed
5.	Digital tools enhance my overall interest in reading.	98 (49.0)	30 (15.0)	10 (5.0)	62 (31.0)	3.26	Agreed
Weighted Mean		18.35					

Total mean = 18.35, Cluster mean = 3.67

Table 3 presents data on the benefits of using digital tools in reading instruction. The analysis indicates a cluster mean of 3.67, which is substantially higher than the decision benchmark of 2.50. This result implies that digital tools are beneficial in reading instruction. The majority of respondents indicated that digital reading tools make reading more interesting and enjoyable, with the highest mean score ($\bar{X} = 3.87$). Similarly, most respondents held that digital reading resources make it easier to access current and updated information, with the second-highest mean ($\bar{X} = 3.77$).

Furthermore, most of the respondents indicated that digital reading materials help them develop better study habits, with a mean value ($\bar{X} = 3.74$). It was further revealed that the majority of respondents reported that using digital tools motivates them to read more frequently, with a mean value of $\bar{X} = 3.71$, and that digital tools improve their overall interest in reading activities, with a mean value of $\bar{X} = 3.26$. The findings revealed that digital tools are beneficial in reading instruction among secondary school students.

5. Discussions

The results from the first research question showed that secondary school pupils in Ikere Local Government Area utilise digital technologies extensively to help them learn to read, as indicated by the cluster mean of 3.10. This indicates that digital innovation is gaining significant traction in educational practices. This result aligns with the claim that the use of Information and Communication Technology in education is increasingly advocated in Nigeria to improve teaching and learning processes (Federal Ministry of Education, 2019). The support from instructors shows that more people are becoming aware of how important digital literacy is, which is the capacity to find, assess, and use digital materials (Mangen et al., 2019).

The results for the second research question demonstrate that digital tools positively influence students' reading comprehension and fluency, with a cluster mean of 3.11. The vast majority of students felt that reading on a computer or tablet helped them better understand texts and learn new words. These results support past studies that showed that digital reading platforms and interactive tools can greatly boost understanding and vocabulary (Chen and Chuang, 2023). The discovery that kids learn new words through digital reading also supports the idea that exposure to a wide range of authentic internet content supports language development (Taj et al., 2018).

Krashen (2018) noted that having a wide range of reading material on digital platforms provides learners with more language input, which is important for enhancing comprehension. The observed improvement in reading comprehension among students supports the assertion that learners are more inclined to interact with digital texts, which are perceived as more engaging and stimulating (Korat and Falk, 2019). This higher level of engagement probably leads to better reading results.

The answers to the third research question indicate that digital technologies are highly effective for teaching reading, as evidenced by a high cluster mean of 3.67. Students were very sure that digital tools made reading more fun, fascinating, and motivating. This research shows how digital innovation can change how children feel about reading and make it more fun.

This aligns with other researchers' findings that digital technologies make learning more interactive and dynamic, boosting student enthusiasm and involvement (Taj et al., 2018). The research also supports the idea that students are more likely to read in digital settings because they are more engaging (Korat and Falk, 2019).

Moreover, the accessibility of contemporary, varied reading materials via digital platforms substantiates the claim that these tools offer learners an expanded array of authentic resources, thereby enhancing their reading experiences (Taj et al., 2018). The enhancement of students' study habits illustrates the learner-centred characteristics of digital technologies, aligning with constructivist ideas that prioritise active involvement and self-directed learning.

Additionally, the motivational advantages identified in this study align with the overarching perspective that technology improves educational outcomes, facilitates personalized learning, and promotes the enjoyment of the learning process. However, Noori (2021) points out that using digital tools is not always easy, and their efficacy depends on how well they are used and guided.

6. Conclusion

The study finds that digital advances have a big role in helping high school students improve their reading skills. Digital innovation has a significant and beneficial effect on the reading abilities of secondary school students in Ikere Local Government. There are certain problems with accessibility and effective use, but the benefits of digital tools for teaching reading are very large. So, making digital tools more common in classrooms and providing pupils with the right support and infrastructure can help them read better and do better in school overall.

Recommendations

Based on the findings, the following recommendations are made

- The government and private stakeholders should invest in providing affordable digital devices and reliable internet connectivity in schools.
- Teachers should be trained on the effective use of digital tools to enhance their integration into reading instruction.
- Educational authorities should partner with digital content providers to offer affordable or free access to high-quality e-books, apps, and other resources.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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