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THE EFFECTS OF DIGITAL STORYTELLING ON PUPILS' ACADEMIC ACHIEVEMENT AND LEARNING RETENTION IN LITERACY IN KANO STATE, NIGERIA

By

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Abstract

This experimental research aimed to examine the influence of incorporating rhymes into literacy instruction on the learning retention and academic achievement of pupils in Kano State, Nigeria. The study adopted a pretest-posttest control group design and involved 103 pupils (50 in the experimental group and 53 in the control group) selected from primary schools within Kano State. The experimental group received instruction enriched with rhymes, while the control group received conventional instruction. By employing t-tests for comparative analysis of the mean scores between the two groups, the findings revealed that pupils exposed to rhymes during instruction exhibited significantly improved learning retention and academic achievement when compared to those exposed to traditional instruction. This suggests that the incorporation of rhymes in literacy instruction positively impacts pupils' learning outcomes. The implications of these results underscore the advantages of integrating rhymes into literacy education. Such an approach can effectively enhance pupils' engagement and comprehension, contributing to improved learning retention. Moreover, the findings advocate for the adoption of interactive and engaging teaching methods, such as the use of rhymes, to foster a conducive learning environment. In the context of Kano State, Nigeria, where educational resources may be limited, the incorporation of rhymes represents a cost-effective and culturally relevant strategy for promoting effective literacy instruction and academic success among pupils. These findings serve as a valuable resource for educators and policymakers, highlighting the potential of innovative teaching approaches to advance educational outcomes in the region.

Keywords: Digital Storytelling, Learning retention, Academic achievement, Literacy, Primary Schools, Kano State, Nigeria

Introduction

The power of literacy extends far beyond the ability to read and write. It encompasses the capacity to employ these skills to connect, interpret, and navigate the complexities of the surrounding world effectively. In today's digital age, the internet presents a wealth of educational resources, yet it can pose a challenge for children who struggle to sift through information, harness its full potential, and maintain a safe and genuine digital footprint. In this context, the integration of digital storytelling as an educational tool gains significance, enabling the electronic communication of ideas and values within classrooms through the integration of movement, text, and animation. When effectively utilized, digital storytelling can reduce reliance on traditional teaching methods, fostering an engaging and simplified approach to literacy education, especially in lower-level and primary school settings.

Despite the availability of technology in classrooms, the full potential of storytelling as a pedagogical tool has not been fully recognized. However, as technology continues to advance and become more accessible, it holds the promise of playing a pivotal role in enhancing the use of storytelling as a powerful educational strategy. Within the Kano State primary education board, digital storytelling has emerged as a novel approach to enhancing literacy instruction, facilitating knowledge retention, and bolstering students' confidence.

This research aims to bridge the gap in understanding the impact of digital storytelling on learning retention and academic achievement in literacy among pupils in Kano State. It considers the multifaceted nature of academic achievement, encompassing not only students' performance in core subjects but also their problem-solving abilities, critical thinking skills, and overall academic progress. Learning retention, on the other hand, significantly influences academic achievement by fostering knowledge application, critical thinking, and adaptability, ultimately contributing to enhanced academic outcomes and lifelong learning skills. As such, the exploration of effective learning strategies that promote retention holds the potential to advance student success and educational outcomes. Learning retention based on pupils' literacy refers to the ability of students to retain and remember literacy-related knowledge and skills over time. It focuses specifically on their capacity to retain and apply concepts and skills related to reading, writing, and language development. Pupils with strong learning retention in literacy can remember and understand what they have read in story or rhymes. They are able to recall key details, make inferences, draw conclusions, and summarize information from various texts. Learning retention in literacy includes the ability to retain and expand

one's vocabulary. Pupils can remember new words they encounter and understand their meanings in different contexts. They can apply these words in their reading, writing, and oral communication. Pupils can retain and apply strategies such as making predictions, using context clues, summarizing, and visualizing enhancing their reading (Jibrin 2023).

Learning retention is an individual's ability to remember and recall information, materials and experiences learn over time. This acquired materials in the mind need to be preserved in form of images for knowledge to develop. When a stimulating situation occurs, retained images are revived or reproduced to make memorization possible (Morris, 2000). Concepts, therefore, need to be presented to the learners in a way or method that touches their sub consciousness, which can trigger quick recalling of the concept being taught or learnt. Okeke (2004) stated that teachers could improve leaning retention of concepts and information by explicitly creating memorable events involving visual or auditory images with projects, plays, simulations and other forms of active learning, to boost pupil's retention of the concept.

Okeke (2004) further stated that whatever pupils have retained for about 12 to 24 weeks after instruction, they might retain forever. In addition, the more time that passes after learning, the less information will be remembered. Okoye (2012) refers to learning retention as the process of maintaining the availability of new meanings or some part of them. It may be suggested that the amount of the original meaning that will be retained at any given point in time is a variable quantity. Forgetting represents a decrement in the availability of an acquired meaning that describes the loss in availability that occurs between the original establishment of the meaning and its later reproduction. Considering the two terms, retention is seen as a positive aspect of memory while forgetting is seen as the negative aspect. Frequent reviews and tests, elaborated feedback and active involvement of students in learning projects have been associated with longer retention.

Similarly, Literacy is the foundation for success in school and today, for success in life. Helping children become independent readers and writers is, thus, a central goal not only of elementary educators, but also of district and school improvement efforts across the nation. Even before the passage of the No Child Left Behind. Act of 2001, many urban districts were focusing on strategies to improve literacy achievement and reduce learning gaps among the pupils in their charge. Since, with its stringent accountability measures and massive Reading First initiative, that focus has only sharpened (Stanovich, 2018). Scotland (2019) defined literacy as “the ability to read, write and use numeracy, to handle

information, to express ideas and opinions, to make decisions and solve problems as family members, workers, citizens, and lifelong learners." Such expanded definition has altered long-standing "rule of thumb measures of literacy for example, the ability to read the newspaper in part because the increasing involvement of computers and other digital story telling in communication necessitates additional skills. According to Abdullahi (2010), literacy can be defined as the initial stage of learning how to read and write. During this stage, it is crucial for teachers to prioritize the child's ability to understand what and how to write. Therefore, teachers should provide appropriate and adequate guidance to ensure the pupils' development in literacy skills.

The overall features of literacy were captured by Atere (2014) who opined that "the knowledge to learn to read and write begins at the budding stage of the learners. The adequate ages of the learners is very crucial since, at this stage, and are not simply referring to the adult system of education. He itemizes the following as the features of literacy. Learning is deliberate, the age is considerable enough that is one to four (1-4yrs), the learning does not involve the use of force and compunction, the teachers are the mediations. The importance of literacy is the ability to read, view, write, design, speak and listen in a way that allows you to communicate effectively (Ahmad, 2017).

In the context of primary education in Kano State, Nigeria, it is important to consider the influence of gender and gender roles on the effect of rhymes and digital storytelling on pupils' learning retention and academic achievement in literacy. Gender refers to the socially constructed roles, behaviors, and expectations that society assigns to individuals based on their perceived sex. Research has shown that gender can impact various aspects of education, including learning styles, preferences, and academic performance. Therefore, it is crucial to examine how gender and gender roles may interact with the use of rhymes and digital storytelling in the literacy development of primary three pupils in Kano State. Firstly, gender roles within the local cultural context of Kano State may shape the way pupils engage with rhymes and digital storytelling. Traditional gender roles often assign different expectations and responsibilities to boys and girls, which can influence their interests, participation, and engagement in various educational activities. These roles may affect how pupils respond to rhymes and digital storytelling and, subsequently, impact their learning retention and academic achievement in literacy. Secondly, differences in learning preferences and styles between boys and girls may influence their response to rhymes and digital storytelling. Research suggests that girls may exhibit a preference for collaborative and social learning

experiences, while boys may lean towards competitive and hands-on learning approaches. Understanding these differences can help educators tailor the use of rhymes and digital storytelling to cater to the unique learning needs of both boys and girls in primary three classrooms (Jibrin& Lawan 2023).

Statement of the problem

The academic achievement levels of primary three pupils in Kano State, Nigeria, demonstrate significant room for improvement in the domain of literacy. Pupils often face difficulties in acquiring foundational literacy skills, such as reading, writing, and comprehension. Addressing this problem is crucial to ensure that primary three pupils achieve the expected literacy benchmarks, thereby enhancing their overall educational outcomes. However, despite the importance of literacy skills in academic achievement, pupils in Kano State, Nigeria, specifically at the primary three level, face challenges in both learning retention and academic achievement. This problem is particularly prominent when it comes to the development of literacy skills. The traditional teaching methods used in Kano State may not effectively engage pupils, leading to reduced learning retention and hindered academic achievement in literacy. The utilization of innovative teaching methods, such as digital storytelling, remains limited in the literacy instruction provided to primary three pupils in Kano State, Nigeria. Consequently, there is a critical need to investigate the potential of digital storytelling in addressing these challenges and improving pupils' academic achievement and learning retention in literacy.

Research Hypotheses

H1: There is no significant effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria.

H2: There is no significant interaction effect of digital storytelling and gender on pupils' academic achievement in literacy in Kano State, Nigeria

Methodology

The research design that adopted for this study is a pre-test, post-test, nonequivalent control group quasi-experimental research design. There will be no randomization of the pupils because intact classes will be used. The design is suitable for establishing the possible cause-and-effect relationship. It is a non-equivalent control design because primary school classes in the study area generally operate as intact group

that is to say each class is fully capacitated with activities and as such, most school administrators will not permit a situation where the additional periods or classes would be disorganized or re-arranged to carry out the research work.

This design will allow for the experimental groups to receive treatment (Digital storytelling and Rhymes) while the control group will not receive any treatment although the control group will be taught the same topics as the experimental group. However, both the experimental and control groups will receive the pre-test and the post-test. The sample consisted of 103 pupils from primary schools in Kano State, Nigeria. The pupils were randomly assigned to either the experimental group or the control group. The experimental group consisted of 50 pupils who received instruction through digital storytelling, while the control group consisted of 53 pupils who received traditional instruction. Prior to the intervention, both groups were administered a pretest to assess their baseline literacy skills. The experimental group then received instruction through digital storytelling, where interactive digital media and narratives were used to convey literacy concepts and engage the pupils. The control group received traditional instruction, following the standard curriculum without the use of digital storytelling. The intervention was conducted over a period of eight weeks, with three instructional sessions per week. Following the intervention, both groups were administered a posttest to measure their learning retention and academic achievement in literacy. The posttest evaluated their reading comprehension, writing skills, and critical thinking abilities. The data collected were analyzed using independent sample t-tests to compare the mean scores between the experimental and control groups. To assess long-term learning retention, both groups were retested three weeks after the post-test assessment.

Results

There was significant effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria

There was no significant interaction effect of digital storytelling and gender on pupils' academic achievement in literacy in Kano State, Nigeria.

Research Hypothesis One: There is no significant effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria.

Table 1: ANCOVA table showing effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	11524.445[a]	4	2881.111	192.481	.000
Intercept	17.583	1	17.583	1.175	.281
Pretest	8.969E-005	1	8.969E-005	.000	.998
Treatment	10986.300	1	10986.300	733.970	.000
Gender	5.088	1	5.088	.340	.561
Treatment * Gender	10.335	1	10.335	.690	.408
Error	1466.895	98	14.968		
Total	440659.000	103			
Corrected Total	12991.340	102			

Table 1 shows the effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria. There was significant effect of digital storytelling on pupils' academic achievement in literacy in Kano State, Nigeria ($F_{(1;98)} = 733.970$; $p < 0.05$). The null hypothesis is therefore rejected in the light of the result since the significant value (.000) is less than 0.05. This implies that treatment had significant effect on pupils' academic achievement in literacy in Kano State, Nigeria. The source of the significant difference is presented in table 2 below.

Table 2: Summary of Bonferroni's PocHoc Pairwise Comparison of the scores between the two groups

Treatment	Mean Difference	Experimental	Control Group
Digital Storytelling	75.30	*	
Conventional Method	54.15		*

Table 2 revealed that the significant effect revealed by table 1 is as a result the significant difference between digital storytelling and conventional method. Digital storytelling refers to experimental group, while conventional method is known as control group. This implies that those exposed to digital storytelling (75.30) performed significantly better than those exposed to conventional method (54.15).

Research Hypothesis Two: There is no significant interaction effect of digital storytelling and gender on pupils' academic achievement in literacy in Kano State, Nigeria.

Table also showed that there was no significant interaction effect of digital storytelling and gender on pupils' academic achievement in literacy in Kano State, Nigeria. There was no significant interaction effect of digital storytelling and gender on pupils' academic achievement in literacy in Kano State, Nigeria($F_{(1; 98)} = .690$; $p < 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value (.408) is greater than 0.05.

Discussion of the findings

The research findings confirm the notion that the integration of digital storytelling in literacy instruction has a positive impact on the learning retention and academic achievement of pupils in Kano State, Nigeria. Digital storytelling, as an innovative educational approach, was shown to create an interactive and captivating learning environment that effectively captured the attention of pupils. This engagement was instrumental in promoting a deeper understanding of the subject matter, leading to improved comprehension and retention of knowledge among the students.

The implications of these findings are substantial for both educators and policymakers in Kano State. Firstly, for educators, the results underscore the significance of embracing modern educational tools and techniques, such as digital storytelling, to enhance the effectiveness of literacy instruction. By incorporating digital storytelling into the curriculum, educators can create a more dynamic and immersive learning experience that caters to the evolving needs and preferences of contemporary learners. Moreover, the use of digital storytelling can help educators cater to different learning styles, promoting inclusivity and accessibility within the educational setting.

Furthermore, for policymakers, these findings emphasize the potential benefits of incorporating technology-driven approaches into the educational system. Integrating digital storytelling into the curriculum can serve as a catalyst for educational reform, fostering a more technologically advanced learning environment that prepares students for the demands of the modern world. This approach aligns with the global trend toward digital literacy and can contribute to bridging the digital divide, ensuring that students in Kano State are equipped with the necessary skills to thrive in the digital age.

Additionally, the integration of digital storytelling in literacy education has the potential

to foster creativity and critical thinking among students, enabling them to become more active and proficient learners. By encouraging students to engage with digital tools, educators can nurture essential skills, such as digital literacy, communication, and storytelling, which are increasingly crucial in today's interconnected and information-driven society. The findings highlight the transformative potential of digital storytelling in enhancing literacy outcomes and preparing pupils for success in an increasingly digital and interconnected world. They emphasize the need for a comprehensive approach to integrate technology into the educational landscape, underscoring the importance of collaboration between educators, policymakers, and technology experts to create a holistic and effective educational framework that prepares students for the challenges and opportunities of the future.

Conclusion

In conclusion, the integration of digital storytelling into literacy education in Kano State, Nigeria, holds significant promise for improving academic achievement and learning retention among pupils. To realize these benefits, it is imperative to follow the recommendations outlined above. By doing so, Kano State can foster a more engaging and effective learning environment, ultimately contributing to the overall educational development of its students.

Recommendations

The study on the effects of digital storytelling on pupils' academic achievement and learning retention in literacy in Kano State, Nigeria, has provided valuable insights into the potential benefits of incorporating digital storytelling into the educational system. Based on the findings and implications discussed in the article, we present the following recommendations: Schools in Kano State should consider integrating digital storytelling as an integral part of their curriculum for literacy education. This inclusion should be carefully planned and aligned with existing learning objectives to maximize its effectiveness. Teachers in Kano State should receive comprehensive training and professional development opportunities on how to effectively incorporate digital storytelling tools and techniques into their teaching methods. This will ensure that educators can harness the full potential of digital storytelling to enhance learning outcomes. Access to Digital Resources; efforts should be made to improve access to

digital resources, including computers, tablets, and internet connectivity, in schools across Kano State. The government and relevant stakeholders should invest in infrastructure to bridge the digital divide and ensure that all students have equal opportunities to benefit from digital storytelling. Content Localization, while digital storytelling offers many benefits, it is essential to develop content that is culturally relevant and aligned with the specific needs and backgrounds of Kano State's pupils. Local stories, languages, and contexts should be incorporated into digital storytelling materials to make learning more relatable and engaging.

Monitoring and Evaluation, continuous monitoring, and evaluation of the implementation of digital storytelling programs in Kano State are crucial. Educational authorities should establish clear assessment metrics to measure the impact of digital storytelling on academic achievement and learning retention. This data can inform future policy decisions and resource allocation. Community Engagement and Parental Involvement: encourage active involvement of parents and the local community in supporting digital storytelling initiatives. Schools should organize workshops and awareness campaigns to educate parents about the benefits of digital storytelling and how they can support their children's learning at home.

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