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Empowering Reading Skills with Genially: Development of a Digital Snake and Ladder Game for Phase C Learners

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ABSTRACT:
This study aims to empower reading skills of Phase C learners through the development of a digital snake and ladder game using the Genially application. The research employed the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The analysis stage involved teachers, students, and instructional materials to identify the most suitable media for reading comprehension learning. Product feasibility was assessed through expert validation in media, content, and language. Effectiveness was further examined through reliability testing, normality, homogeneity, and hypothesis testing, complemented by pretest–posttest analysis using N-Gain. Limited trials were conducted with 16 students and expanded to 31 students in broader implementation. The results demonstrate that the Genially-assisted digital snake and ladder game, developed through the ADDIE model, effectively enhances reading comprehension. Expert evaluations confirmed its feasibility, while student feedback indicated higher engagement, motivation, and comprehension. Moreover, students' reading comprehension scores improved by 39.7%, evidencing the significant contribution of interactive, game-based digital media to cognitive development. In conclusion, the Genially-assisted digital snake and ladder game is feasible and effective for empowering reading skills in Phase C learners, and it holds potential for adaptation in other learning materials.

Abstrak:
Penelitian ini bertujuan untuk memberdayakan keterampilan membaca siswa Fase C melalui pengembangan media permainan ular tangga digital berbasis aplikasi Genially. Penelitian menggunakan model pengembangan ADDIE (Analysis, Design, Development, Implementation, Evaluation). Tahap analisis melibatkan guru, siswa, serta materi pembelajaran untuk mengidentifikasi media yang sesuai dalam pembelajaran membaca pemahaman. Kelayakan produk dinilai melalui validasi ahli media, materi, dan bahasa. Efektivitas diuji lebih lanjut melalui uji reliabilitas, normalitas, homogenitas, serta uji hipotesis, yang dilengkapi dengan analisis pretest–posttest menggunakan N-Gain. Uji coba terbatas dilakukan pada 16 siswa dan uji coba lebih luas pada 31 siswa. Hasil penelitian menunjukkan bahwa pengembangan media ular tangga digital berbantuan Genially dengan model ADDIE efektif dalam meningkatkan keterampilan membaca. Validasi ahli menegaskan kelayakannya, sementara penilaian siswa menunjukkan peningkatan keterlibatan, motivasi, dan pemahaman. Selain itu, skor pemahaman membaca siswa meningkat sebesar 39,7%, yang menunjukkan kontribusi signifikan media digital berbasis permainan interaktif terhadap perkembangan kognitif. Kesimpulannya, media ular tangga digital berbantuan Genially layak dan efektif digunakan untuk memberdayakan keterampilan membaca siswa Fase C serta berpotensi dikembangkan pada materi pembelajaran lainnya.

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INTRODUCTION

Education is a cornerstone in developing quality human resources by fostering literacy, critical thinking, and creativity (Siswanti et al., 2022). In the digital era, students are required not only to access information but also to analyze, evaluate, and apply it meaningfully. Reading comprehension is one of the key foundations for achieving these competencies, as it enables learners to construct meaning, solve problems, and make decisions based on textual information (Banditvilai, 2016; Rodríguez Sua, 2021). For Phase C learners in particular, strengthening reading skills is essential, since this stage is crucial for transitioning from basic literacy to more complex cognitive skills.

However, challenges in reading literacy remain a pressing issue in Indonesia. The 2022 PISA results recorded Indonesia's reading score at 359, reflecting a decline of 12 points and showing little improvement since 2000 (Alam, 2023). Observations in several elementary schools, including SD Kesatuan Bogor, revealed that reading instruction still relied heavily on textbooks. As a result, students showed limited enthusiasm, low participation, and difficulties in summarizing information. PIRLS (2021) further emphasized disparities in literacy achievements globally, highlighting how teaching methods, resources, and instructional media play critical roles in shaping outcomes (Studi Internasional PIRLS, 2022; Novita, et.al., 2024).

To address these challenges, teachers have attempted various strategies such as discussions, shared reading, and interactive questioning. Yet, problems such as low motivation and limited vocabulary persist. In this context, digital learning media emerges as a promising solution, especially educational games that integrate interactivity and engagement (Mansur et al., 2024). One innovative approach is the development of a digital snake and ladder game using Genially. Genially offers interactive features such as quizzes, animations, and adaptive game design, enabling educators to create dynamic learning experiences (Rusmining et al., 2024). This integration of technology and play not only attracts learners' attention but also strengthens comprehension and active participation (Barach, 2021).

This study therefore aims to empower reading skills of Phase C learners through the development of a Genially-assisted digital snake and ladder game. Specifically, it focuses on designing the game using the ADDIE model, validating its feasibility through expert review, and evaluating its effectiveness in improving students' reading comprehension. Furthermore, the study seeks to capture learners' responses regarding motivation and engagement. The novelty of this research lies in transforming a traditional board game into an interactive digital learning tool, making it not only feasible and engaging but also impactful in enhancing literacy skills for Phase C students.

Despite the availability of digital learning platforms, most studies in Indonesia have focused on conventional digital media such as e-books, PowerPoint-based games, or quiz applications. Limited research has examined how traditional games can be reimagined into interactive digital formats that directly support reading comprehension in elementary school contexts. Moreover, few studies specifically target Phase C learners, a group that is at a transitional stage of literacy development and requires tailored approaches that balance fun, challenge, and comprehension. This creates a significant research gap that needs to be addressed.

The present study offers a novel contribution by integrating the familiar mechanics of the snake and ladder game with the interactive capabilities of Genially. Unlike static or text-heavy digital tools, this approach combines gamification, interactivity, and adaptive content delivery, creating a more engaging and motivating environment for learners. By embedding quizzes, animated challenges, and comprehension tasks into the gameplay, the research introduces an innovative model of digital learning media that not only supports literacy but also fosters critical engagement, making it especially suitable for Phase C learners.

RESEARCH METHOD

This study applies a Research and Development (R&D) approach with the ADDIE development framework, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation. The model was selected because of its structured and iterative nature, allowing researchers to revise the product continuously to achieve validity and feasibility

(Gustiani, 2019). In this project, the Genially platform was utilized to design and develop a digital Snake and Ladder game, with content adapted from Indonesian reading materials for Phase C learners. The final product aims to enhance students' reading comprehension and critical thinking while also supporting differentiated learning practices at SD Kesatuan Bogor.

The development procedure began with designing the initial prototype, followed by expert validation, limited trials, broader implementation, and revisions at each stage. The ADDIE model was deemed suitable because of its practical, flexible, and systematic workflow (Dick et al., 2015). The analysis phase identified students' needs, teachers' challenges, and curriculum requirements. The design phase outlined the structure of the learning media, including reading texts, comprehension activities, and game mechanics. During the development phase, the digital Snake and Ladder game was created using Genially, integrating animations, quizzes, and interactive challenges. The implementation phase tested the media with small and larger groups of students, while the evaluation phase ensured product quality and effectiveness through expert feedback and learning outcome assessments.

Four techniques were employed in gathering research data: observation, interviews, questionnaires, and tests. Observations were conducted in the classroom using a Guttman scale checklist to document students' reading comprehension and critical thinking performance. Structured interviews with teachers provided insights into learning needs and classroom challenges. Questionnaires with a 1–4 scale were distributed to teachers, students, and expert validators (media, content, and language) to assess feasibility and practicality. Tests, based on Barrett's taxonomy, measured reading comprehension skills through pre-tests and post-tests, including indicators such as identifying main ideas, analyzing details, drawing conclusions, and applying information. Supporting documents included observation sheets, interview transcripts, validation forms, and test records.

The instruments employed in this study included: (1) observation sheets, (2) structured interview guides, (3) validation sheets for media, content, and language experts, (4) student response questionnaires, and (5) reading comprehension test items. These instruments were designed to ensure comprehensive evaluation of the digital Snake and Ladder game.

Data were analyzed using qualitative and quantitative methods. Qualitative data, such as interview responses and expert suggestions, were analyzed descriptively to refine the media. Quantitative analysis involved expert validation using a Likert scale, where the Content Validity Ratio (CVR) was calculated to determine the accuracy of instruments. Student responses were quantified by calculating the percentage of positive feedback. The test instruments underwent item analysis, including validity testing with the Pearson Product Moment, reliability testing with the KR-21 formula and Cronbach's Alpha, difficulty index classification, and discrimination power analysis. Furthermore, statistical procedures such as normality, homogeneity, and hypothesis testing were applied. The N-Gain score was used to analyze improvement between pre-test and post-test results, categorizing learning gains as low, moderate, or high.

FINDINGS AND DISCUSSION

Analysis

The research findings indicate that developing an interactive digital board game using Genially is an innovative solution to enhance reading comprehension skills among Phase C students. Based on a preliminary study conducted at SD Kesatuan Kota Bogor, involving literature reviews, classroom observations, student surveys, and interviews with teachers and students, it was found that while students have a high interest in reading, their comprehension skills remain a challenge. The lack of engaging interactive learning media further hinders the effectiveness of reading instruction. The field study results show that most students desire educational games as a more engaging learning tool. Classroom observations reveal the limitations of conventional teaching methods, while interviews with teachers and students confirm that reading comprehension remains low. Therefore, the development of the Genially-assisted digital board game is expected to serve as an effective and engaging alternative to enhance students' reading comprehension skills.

Design

The design stage involved creating a digital snake and ladder game concept tailored to Phase

C learners. The design was structured to include multiple reading comprehension tasks embedded in each step of the game. Each ladder represented progress through correct answers, while snakes symbolized setbacks due to incorrect responses. The integration of visual aids, colorful design, and interactive animations was carefully planned to maintain learner engagement. Additionally, feedback mechanisms were incorporated to provide instant responses, allowing students to reflect on their performance and learn from mistakes.

Development

During the development stage, Genially was used to build the digital snake and ladder game. This platform allowed the researchers to embed multimedia elements such as audio instructions, short reading passages, comprehension questions, and interactive feedback. The development focused on creating an accessible and user-friendly interface so that students could easily navigate the game both independently and with teacher guidance. The digital board game was refined through iterative revisions based on feedback from experts in instructional design, language learning, and classroom practitioners to ensure content validity and practicality.

Implementation

Implementation was carried out in two phases: limited and extensive testing. In the limited trial, the game was tested with a small group of students to identify technical issues, instructional clarity, and engagement levels. Feedback from this stage led to minor adjustments, particularly in simplifying instructions and adjusting the difficulty level of the reading tasks. In the extensive trial, the game was applied in a larger classroom setting at SD Kesatuan Kota Bogor. Students actively participated in the learning process, showing enthusiasm and sustained attention compared to traditional reading lessons. Teachers reported that the game supported collaborative learning, as students often discussed answers and strategies during gameplay.

Evaluation

The evaluation stage examined both the effectiveness and practicality of the digital snake and ladder game. Data were collected through pre- and post-tests, teacher interviews, student questionnaires, and classroom observations. The results demonstrated a significant improvement in students' reading comprehension scores after using the game. Moreover, students reported higher motivation and enjoyment in reading activities. Teachers highlighted that the Genially-based game provided a meaningful supplement to conventional instruction, making reading lessons more interactive and student-centered. Overall, the evaluation confirmed that the digital snake and ladder game empowered Phase C learners by combining entertainment with educational value, successfully bridging the gap between interest in reading and comprehension achievement.

Discussion

The development of a Genially-assisted digital Snakes and Ladders game in this study was guided by the ADDIE framework, covering the stages of analysis, design, development, implementation, and evaluation. Unlike previous studies that often stopped at the implementation stage, this research emphasizes a complete cycle, ensuring that the media was not only created and tested but also refined through systematic evaluation. By addressing each phase, the study provides a comprehensive overview of how interactive media can be optimized to empower students' reading comprehension and engagement. This broader scope distinguishes the research from earlier works that tended to overlook the importance of continuous feedback and iterative revision.

The results of expert validation underline the feasibility of the developed media. Evaluations from specialists in media, language, and subject content demonstrated that the digital Snakes and Ladders game aligned well with instructional goals and student needs. The Content Validity Ratio (CVR) achieved a score of 1, reflecting strong agreement among experts that the product was suitable for classroom use. This finding supports the argument of Hung & Yen (2022) that expert-based validation ensures reliability in digital media development. Moreover, the integration of feedback from multiple perspectives enhanced the practicality of the product, as also emphasized by Chen et al. (2018). This comprehensive validation process strengthens the claim that the developed media is both pedagogically sound and engaging for learners.

The implementation phase revealed that Phase C students responded positively to the digital Snakes and Ladders game. Observations and student questionnaires showed that the interactive

elements of the game—such as animated ladders, question-based progression, and immediate feedback—encouraged active participation. Compared to conventional textbook-based lessons, students displayed higher levels of motivation and collaboration when engaging with the game. Teachers also noted that the media provided opportunities for differentiated learning, as students with varying reading abilities could progress at their own pace. This aligns with findings by Nguyen et al. (2024), who highlight the role of gamified learning in fostering inclusivity and sustained student engagement.

Evaluation of student outcomes further demonstrated the effectiveness of the Genially-assisted game. The pretest and posttest results indicated significant improvement in reading comprehension, particularly in identifying main ideas, analyzing details, and drawing inferences from texts. The gain score analysis confirmed measurable progress, suggesting that the integration of digital game-based learning can empower learners to develop stronger cognitive and literacy skills. These results resonate with studies by Antonopoulou et al. (2022) and Angelelli et al. (2023), which emphasized the contribution of gamified learning environments to higher-order thinking and comprehension. Beyond cognitive achievement, the study also highlights the affective benefits of interactive media: students found reading activities more enjoyable, thus reducing the perception of reading as a tedious task (Novita & Sundari, 2020, Novita, et.al., 2023).

Overall, the findings affirm that the digital Snakes and Ladders game, developed with Genially, is not merely a supplementary tool but an empowering medium that transforms reading lessons into an interactive and motivating experience. By combining entertainment with educational value, the game successfully addresses the gap between students' interest in reading and their actual comprehension abilities. This novelty underscores the potential of game-based digital platforms to enrich literacy education and provide sustainable improvements in both engagement and academic outcomes.

CONCLUSION

This study demonstrates that the development of a Genially-based digital snake and ladder game provides an innovative solution to improve reading skills, particularly reading comprehension, among Phase C learners. The needs analysis revealed that while students showed interest in reading, their comprehension skills remained limited due to the lack of interactive and engaging media to support reading instruction. Through systematic stages of design and development, the media was created by integrating educational game elements tailored to the characteristics of Phase C learners. Both limited and broader trials indicated positive responses from students and teachers, showing that the game effectively enhanced learners' motivation, engagement, and comprehension. The final evaluation confirmed that the use of Genially as a digital platform is not only effective but also flexible and appealing to learners. Therefore, the Genially-based digital snake and ladder game is feasible to be implemented as an alternative medium for reading instruction in elementary schools. Moreover, it contributes novelty by integrating digital game-based learning with pedagogical goals to empower students' reading skills.

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