

ComicLearn Development: Interactive Digital Comic Based Learning Media for Basic English Vocabulary Learning

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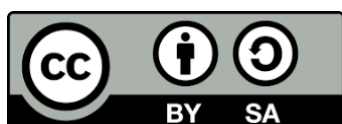
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Abstract

The study aims to develop "ComicLearn," an interactive comic-based educational resource designed to assist young learners in understanding English vocabulary. The impetus for this study stemmed from a variety of challenges observed in English language teaching, including difficulties with vocabulary retention, minimal involvement in learning activities, and limited use of interactive educational tools in the classroom. A Research and Development (R&D) approach is adopted, guided by the Lee and Owens framework, which includes stages such as analysis, design, development, implementation, and assessment. However, the study only concentrated on the implementation stage without conducting effectiveness evaluations or experimental studies. The research was conducted at SD Muhammadiyah 5 Malang, targeting fourth grade students and English teachers. The data collection method involves observation, interviews, documentation, and validation surveys. The result is an engaging learning platform available through a website featuring digital comics, audio for vocabulary pronunciation, educational games, and interactive quizzes. The theme focuses on "Library Visits" to promote contextual vocabulary learning. Descriptive qualitative methods are used in data analysis, in addition to the evaluation of the feasibility percentage of both media specialists and users. Media expert validation resulted in a feasibility score of 94.54%, while user validation reached 92.50%, both categorized as "Very Feasible". The findings show that ComicLearn effectively meets the educational needs of students and aligns with classroom teaching requirements. As such, ComicLearn can serve as a viable digital learning tool that encourages a more interactive, engaging, and contextually applicable experience in English vocabulary learning for elementary school children.

Keywords: digital comics, interactive learning media, English vocabulary learning, elementary students, ComicLearn



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INTRODUCTION

The rapid development of digital technology has significantly changed educational practices around the world, especially in language learning at the primary education level. Educational institutions are increasingly integrating digital learning media to create interactive, student-centered, and meaningful learning experiences. According to UNESCO (2023), the integration of technology in primary education can increase student engagement and support active learning if implemented appropriately. In the context of language learning, educational technology plays an important role in facilitating students' understanding through multimedia elements such as visuals, audio, animation, and interactive activities. Therefore, digital learning innovations have become an important component in improving the quality of learning in elementary schools.

English has become one of the most important international languages used in communication, education, science, and technology. As a result, English language learning was introduced from the early stages of education, including elementary school. One of the fundamental components of learning English is vocabulary mastery because vocabulary serves as the foundation for listening, speaking, reading, and writing skills. Nation (2022) explained that vocabulary knowledge greatly affects students' ability to understand and use language effectively. Without adequate vocabulary mastery, students may have difficulty understanding instructions, communicating ideas, and understanding English texts. Therefore, vocabulary learning should receive serious attention in basic English language education.

Despite its importance, vocabulary learning remains a challenge for elementary school students. Many students consider English to be a difficult subject because they struggle to memorize and retain vocabulary. Traditional learning practices that rely heavily on memorization and textbook-based teaching often leave students feeling bored and less motivated during classroom activities. Rahmatullah et al. (2023) stated that monotonous learning methods negatively impact student motivation and engagement in the classroom. Additionally, elementary school students tend to have short attention spans and need visual, contextual, and interactive learning experiences to maintain their interest during lessons.

Primary school students' traits show that they learn more effectively through visual and interactive activities. Students actively build knowledge through meaningful experiences and social interactions. This theory emphasizes that learning occurs more effectively when students are directly involved with contextual and interactive learning environments. Therefore, learning media for elementary school students must not only present information but also facilitate meaningful interaction and active participation.

In addition, Mayer's Multimedia Learning Theory explains that students learn better when verbal information is combined with visual elements such as images, narrative, audio, and animation (Mayer, 2021). A multimedia learning environment can reduce cognitive overload and help learners process information more effectively. Through dual-channel processing, students can simultaneously understand textual and visual representations, resulting in better memory retention and comprehension. As a result, integrating multimedia components into vocabulary learning media can support elementary school students in understanding and remembering vocabulary more efficiently.

Digital comic-based learning media has recently gained considerable attention in educational technology because it combines storytelling, visual learning, and contextual interaction in a language learning environment. Digital comics allow students to understand vocabulary through pictorial narratives, dialogue, and real-life situations presented in an engaging visual format. Previous research revealed that comic-based learning media can increase students' motivation, reading comprehension, and vocabulary acquisition in English learning (Rahmawati & Hidayat, 2021). In addition, Rizcallah and Parlak (2025) found that comics as a multimodal learning input positively support students' vocabulary development

because visual and textual elements help students understand the meaning of words more contextually. Through stories and visual characters, students are able to connect vocabulary with meaningful situations, making the learning process more enjoyable and memorable.

Some research has also explored the use of interactive multimedia, digital storytelling, and educational games in basic English learning. Yunus et al. (2021) explained that digital storytelling activities can improve vocabulary learning and increase student participation during classroom activities. Similarly, Sari and Puspitasari (2022) state that an interactive multimedia learning environment supports young learners' motivation and engagement because multimedia elements provide a more engaging and student-centered learning experience. Furthermore, Suprpto et al. (2024) emphasized that digital comics and visual education media have a strong potential to support meaningful learning in primary education due to their ability to present information through multimodal interactions. However, most previous research has tended to focus separately on interactive multimedia, educational games, or digital comics without integrating these components into one comprehensive learning platform.

Research that integrates digital comics, audio pronunciation, educational games, and web-based learning into one interactive vocabulary learning medium for elementary school students is still limited. Most learning media still only emphasize one learning component and do not comprehensively combine storytelling activities, pronunciation support, visual interaction, and vocabulary practice comprehensively. This condition shows that there is a research gap regarding the development of integrated multimedia-based vocabulary learning media specifically designed for basic English learning. Therefore, it is necessary to develop an interactive learning platform that combines digital storytelling, vocabulary audio pronunciation, educational games, and contextual learning activities to create a more engaging and meaningful vocabulary learning experience for elementary school students.

Based on initial observations and interviews conducted at SD Muhammadiyah 5 Malang, several problems were identified in learning English vocabulary. Students find English difficult because they easily forget vocabulary after class lessons. Learning activities are still dominated by the memorization method and the teacher's explanation using textbooks. As a result, students become less active and less enthusiastic during learning activities. The English teacher also expressed uncertainty about whether students have actually achieved their intended learning goals because students often forget the vocabulary they have learned before. In addition, existing learning media are considered less interactive and visually appealing to elementary school students.

Considering these educational issues and research gaps, the study developed "ComicLearn," a web-based interactive learning medium that integrates digital comics, pronunciation audio, educational games, and interactive quizzes for basic English vocabulary learning. The learning content focuses on the topic of "Visits to the Library", introducing library rules and basic vocabulary through contextual storytelling and visual interactions. To develop learning media systematically, this study adopts the Lee and Owens development model which consists of the stages of analysis, design, development, implementation, and evaluation. However, the research was limited to the implementation stage without conducting effectiveness testing or experimental studies. The purpose of this research is to develop ComicLearn as an interactive digital comic-based learning medium for learning basic English vocabulary. This research is expected to contribute theoretically to the development of digital comic learning and practically provide innovative learning media to teachers to support more interesting and contextual vocabulary learning activities in elementary schools.

RESEARCH METHODS

This research uses a Research and Development (R&D) approach to develop an interactive digital learning medium called ComicLearn. The study adopts Lee and Owens'

development model which consists of five stages: analysis, design, development, implementation, and evaluation. This model was chosen because it provides a systematic procedure that is suitable for developing educational technology products. However, this study is limited to the implementation stage and does not conduct effectiveness or experimental testing.

The research was conducted at SD Muhammadiyah 5 Malang. The subjects of the study included a fourth-grade elementary school student and an English teacher. This research is focused on the development of web-based interactive learning media to support English vocabulary learning for elementary school students. The learning material is centered on the topic "Visits to the Library", with a focus on vocabulary related to library activities and rules.

Data collection techniques include observation, interviews, documentation, and validation questionnaires. Observations were made to identify learning conditions in the classroom and students' difficulties in learning vocabulary. Interviews with English teachers aim to obtain information about student characteristics, learning problems, and classroom needs. Documentation is used to support the development process and implementation activities. Validation questionnaires were given to media experts and users to assess ComicLearn's eligibility.

The analysis stage involves identifying learning needs and classroom problems related to learning English vocabulary. The design stage is focused on creating media structures, comic storyboards, user interfaces, navigation systems, and interactive activities. The development phase involves the production of a ComicLearn website that integrates digital comics, pronunciation audio, educational games, and quizzes. The implementation stage involves the application of media during English learning activities in the fourth grade. Finally, the evaluation stage reviews the implementation results and feedback from validators and users. Data analysis using descriptive qualitative analysis

RESULTS AND DISCUSSION

The Findings Analysis stage revealed that students had difficulty memorizing vocabulary. Most students consider English to be a difficult subject because learning is still dominated by textbook-centric teaching. As a result, students show low participation. These findings demonstrate the need for interactive learning media that integrates visual storytelling and games to enhance the vocabulary learning experience.

The Media Design stage is designed as a website-based platform using a child-friendly interface. The main menu includes a comic page, a vocabulary page, a game page, and a quiz. The comic titled "A Visit to the Library" introduces the characters Ben, Sara, and Miss Anna. Navigation buttons are included to simplify user interaction.



Figure 1. ComicLearn Website Welcome Page

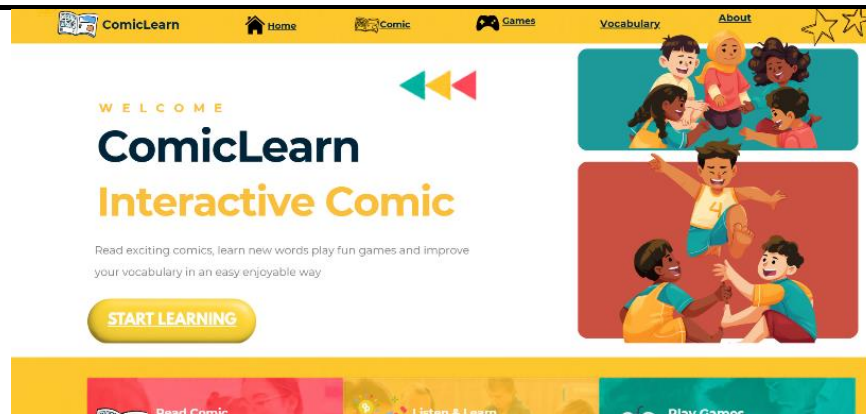


Figure 2. Main Navigation Interface

Development Stage The development process uses Canva for visual design and Wordwall for educational game integration. The comic section presents a picture story, while the vocabulary section provides audio pronunciation. The integration of visual, verbal, and interactive components reflects Mayer's Multimedia Learning Theory.



Figure 3. Comic Title Page: "A Visit to the Library"



Figure 4. Interactive Digital Comic Storytelling

Implementation Stage Students use ComicLearn while learning English at SD Muhammadiyah 5 Malang. The atmosphere of the classroom became more active. Students show enthusiasm when interacting with characters and multimedia features. Teachers provide positive feedback because the media creates communicative and engaging learning situations.

Evaluation Stage The evaluation stage reviews feasibility through validation of media experts and users.

- **Media Expert Validation:** Based on 11 assessment items, the expert (Eka Pramono Adi) gave a total score of 52.

$$P = \left(\frac{52}{55} \right) \times 100\% = 94.54\%$$

Result: **Very decent.**

- **User Validation / UAT:** Conducted by the teacher (Khansa Tania) with 16 assessment items, obtained a score of 74.

$$P = \left(\frac{74}{80} \right) \times 100\% = 92.50\%$$

Result: **Very decent.**

Table 1. Validation Results of Digital Learning Media

Validator	Total Score ($\sum x$)	Max Score ($\sum X$)	Percentage (P)	Category
Media Expert	52	55	94.54%	Highly Worth It
User (UAT)	74	80	92.50%	Highly Worth It

CONCLUSION

This research aims to develop ComicLearn as an interactive digital comic-based learning media for learning basic English vocabulary. The study uses the Research and Development (R&D) method using the Lee and Owens development model which consists of the stages of analysis, design, development, implementation, and evaluation. However, the research was limited to the implementation stage without effectiveness testing.

The findings show that ComicLearn was successfully developed according to the learning characteristics of students and the needs of the classroom. The media integrates digital comics, pronunciation audio, educational games, and interactive quizzes into a website-based learning platform. The validation results show that ComicLearn obtained a feasibility percentage of 94.54% from media expert validation and 92.50% from user validation, so it is categorized as 'Very Worthy'.

Theoretically, this research contributes to the development of digital comic-based learning media that is integrated with the principles of multimedia and interactive learning. Practically, ComicLearn can serve as an alternative learning medium for teachers to create a more engaging, contextual, and student-centered English vocabulary learning experience in elementary schools.

However, this study has limitations because it does not conduct experimental or effectiveness testing and is only carried out in one school setting. Therefore, future research is recommended to conduct a broader experimental study involving a larger group of participants to measure the effectiveness of ComicLearn on students' vocabulary achievement and learning motivation.

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