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Interactive Multimedia Development in Learning English Vocabulary for Young Learners

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Keywords: Interactive multimedia; vocabulary; young learners

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Abstract

The aim of this study was to 1) examine the target and learning needs of grade four students; 2) develop interactive learning multimedia for learning English vocabulary for young learners; 3) explain the process of developing interactive multimedia; 4) reveal the interactive multimedia appropriateness to be used as a learning media. This study was design based research (DBR). The development model refers to Jolly & Bolitho in Tomlinson (2011) which consist of seven steps which modified into six steps. The data were collected through interview transcript and questionnaires consisting of students' need analysis questionnaires; expert judgment questionnaires; students' evaluation questionnaires. The data from the interview were analyzed descriptively. Meanwhile, the data collected using questionnaires were analyzed quantitatively with percentages and frequencies. There were six units of the developed multimedia. For its appropriateness, the media was validated by media expert and students. Based on the expert judgment questionnaires, the media was categorized as "very good" with the mean values of 3.6. The result of the students' evaluation also showed that the product categorized as "very good" with the mean values 3.4. This means that the media is considered appropriate to be used as a learning media.

How to cite: Lubis, W., Ciptaningrum, D., & Bafirman, B. (2025). Interactive Multimedia Development in Learning English Vocabulary for Young Learners. *JETL (Journal of Education, Teaching and Learning)*, 10(1). doi:<http://dx.doi.org/10.26737/jetl.v10i1.7059>

INTRODUCTION

English has become an increasingly important language to introduce to young learners due to its status as a global lingua franca and its critical role in academic and professional spheres. Early exposure to English can provide children a significant advantage in their future educational and professional opportunities.

However, in Teaching English to Young Learners (TEYL) particular in Indonesia presents several challenges such as government policy, teachers' qualification, curriculum

issue, and school support and facilities (Musiman et al., 2020). Additionally, Agung (2019) mentioned that students' low proficiency, limited educational resources, and students' lack of enthusiasm in learning as well as insufficient environmental support from society, are significant obstacles in teaching English to young learners in Indonesia. Furthermore, English is taught as a local content subject in Indonesia, while it is viewed as a foreign language. Consequently, English teachers must employ engaging and enjoyable methods to teach the young learners. Therefore, the teacher needs to organize learning materials that align with the learners' need.

The language skills taught in primary school are speaking, listening, reading, and writing. In addition to these four core skills, primary English education often incorporates vocabulary, grammar, and pronunciation. One of the most crucial element in the development of linguistic abilities among these components is vocabulary mastery. A strong vocabulary foundation is crucial for advancing proficiency in all language skills, including listening, speaking, reading, and writing. Biemiller (2003) argues that vocabulary instruction should begin early, noting that significant differences in vocabulary knowledge are already evident among children by the end of second grade.

Align with those challenges, they also happened in my research contact. Based on researcher's early observations, the English teacher of SDN Perjuangan used a course book and worksheet book in the teaching and learning processes. Additionally, he taught vocabulary using a variety of methods to help the students comprehend the lessons. However, it is still feasible to provide another materials because this school has provide each classroom with a projector and there is a computer laboratory, accessible internet connection that can be used to construct interactive learning materials. Teng (2023) highlights the potential of digital tools and interactive multimedia in enhancing vocabulary learning. He argues that multimedia input can assist individuals in learning target vocabulary items by enhancing text comprehension.

Based on the problems outlined above, the objectives of this study are: 1) To examine the target and learning needs, 2) To developed the appropriate design of interactive multimedia as learning media for learning English vocabulary to grade IV students of SDN Perjuangan, 3) To explain the process of developing interactive multimedia for learning English vocabulary, 4) To reveal the developed interactive multimedia appropriateness as learning media.

(Teaching English for Young Learners)

Ellis (2014) believes that children under the age 13 can use term 'young learners'. Linse (2005) writes in his book states that children between the ages of 5-12 are called young learners. Therefore, those young learners are children under 13 years who study in Kindergarten to Elementary School.

The concerns that were discussed above have caused many children all across the world to start studying English as a second or foreign language sooner. In addition, Brewster and Ellis (2003) observed that "starting to acquire a foreign language many years earlier merely increases the overall duration of language learning, typically starting at age six or nine instead of eleven or twelve.

(Vocabulary)

Vocabulary, at its core, refers to the body of words in a particular language. However, researchers like Nation (2001) and Schmitt (2010) have expanded this definition to include not just individual words, but also collocations, phrases, and formulaic sequences. The nature of vocabulary

encompasses various dimensions, including form (spoken, written, and word parts), meaning (concepts and associations), and use (grammatical functions, collocations, and constraints on use). Nation (2001) emphasizes that vocabulary knowledge is essential for all language skills, asserting that a large vocabulary size correlates strongly with proficiency in reading, writing, speaking, and listening. Furthermore, the literature underscores the critical role of vocabulary in overall language proficiency, reading comprehension, and academic success, as evidenced in studies by Stahl & Nagy (2005).

(Materials)

Tomlinson (2011) broadly defines materials as anything used by teachers or learners to facilitate language learning. These materials can include cassettes, videos, CD-ROMs, dictionaries, grammar books, readers, workbooks or photocopied exercises. Furthermore, McGrath (2013) highlights that materials are not just physical objects but also include tasks, activities, and social interactions designed to promote language acquisition.

Tomlinson (2011), a prominent figure in materials development for language teaching, proposed several key criteria for evaluating the quality of learning materials. The following are the brief explanation of each criteria: 1) Engagement, 2) Authenticity, 3) Learner autonomy, 4) Visual appeal, 5) Relevance, 6) Variety, 7) Critical thinking, 8) Interaction, 9) Cultural Awareness, 10) Flexibility.

(Interactive Multimedia)

Mayer (2002) describes interactive multimedia as presentations incorporating words and pictures that are intended to foster meaningful learning and allow user interaction. Extending this, Neo & Neo (2001) characterize interactive multimedia as the combination of various digital media elements, including text, graphics, audio, and video, with the addition of user interactivity. Moreover, Stemler (1997) highlights that interactive multimedia engages multiple senses simultaneously, potentially enhancing the learning process. Vaughan (2011) describes five core elements: text, audio, video, graphics, and animation.

Stemler (1997) highlights the importance of clear objectives, interactivity, and learner control as the criteria of interactive multimedia. More recently, Gilakjani (2012) in Mayer (2001) describes interactive multimedia as a multisensory experience where the representation of information can be simultaneously changed and reciprocally affected by a user's actions, fostering active learning.

METHODS

This research is classified into Design-based research (DBR). DBR is a research design suitable for developing an intervention such as programs, teaching-learning strategies and materials, products, and systems to address complex educational issue or to develop and validate theories (Plomp & Nieveen, 2013).

In this study, the researcher adapted the procedure of development proposed by Jolly & Bolitho, as outlined in Tomlinson (2011), with some modifications. The model of development is divided into seven steps: 1) identification of need for material, 2) exploration of need, 3) contextual realization of materials, 4) pedagogical realization of materials, 5) physical production, 6) students' use of the materials, and 7) evaluation materials against agreed objectives. The researcher modified the procedure by omitting some steps to meet the conditions of the development of interactive multimedia learning. The model of the development is outlined below:

1. Conducting Need Analysis

The process begins with recognizing a need for new materials. The need analysis questionnaire was administered to the students to analyze their target needs, learning needs, and preferences regarding the developed interactive multimedia. Additionally, an interview was conducted with the English teacher to gain insight into the specific requirements of young learners and teachers regarding vocabulary learning.

2. Developing Course Grid

In this step, the researcher continued to design the course grid related to the curriculum and the need analysis results. The researcher analyzed the exercises or activities that should be carried out in the media. The exercises and activities were adapted from the textbook that the teacher used, based from the students' need, and other resources.

3. Designing Materials (First Draft of the Materials)

In this stage, the researcher began to design the flowchart besides organized the materials sequentially. *Canva* and *Powerpoint* were utilized to design interactive multimedia based on the course grid. *Canva* was used to make pictures. *PowerPoint* was used to make slides containing materials, learning objectives, and animation. *PowerPoint* was the main software for developing the interactive multimedia. After designing the materials in *PowerPoint*, the researcher converted the type of file into *PowerPoint Slideshow*.

4. Expert Judgement

After designing the first draft of the interactive multimedia, the researcher consulted the media to the media expert to evaluate the media. The expert will evaluate the materials appropriateness and the design appropriateness. The result of evaluation from the expert lead the researcher to design the second draft of the multimedia by revising the first draft as the expert's suggestions.

5. Implementation

After revising the first draft of the interactive multimedia, the media are then used by the target audience, in this case are young learners.

6. Materials Evaluation

After trying out the multimedia, the next step was evaluation. The result of the evaluation stage was gathered by using questionnaires to obtain students opinion about the interactive multimedia. The study was conducted in SDN Perjuangan in class IVA. The subject of this research were the fourth grade students and an English teacher at SDN Perjuangan Yogyakarta. This research employed two types of data: qualitative and quantitative. The qualitative data were collected through interviews, while, the quantitative data gathered from the questionnaires distributed to the students and the expert.

This research used three types of questionnaires. The data from the need analysis questionnaires were analyzed by calculating the percentage from each choice within the questions. For the expert judgement and students' evaluation questionnaire, the researcher used Likert Scale quantify the experts' and students' opinion through the questionnaires. The data from the questionnaires, then, measured using mean (central tendency). After that, the data were converted into descriptive statistic. The data conversion table proposed by Suharto (2006) was used to describe the results using descriptive analysis. Meanwhile, the interview was conducted based on the interview guidelines. Next, the results of the interview were written in the form of interview transcripts and were analyzed qualitatively by using procedure proposed by Miles et al (2014).

RESULT AND DISCUSSION

In this section, the research finding and discussion are presented. The results of the, result of need analysis, the description of the course grid, the design of the materials, the evaluation of the expert judgement, and the revision of the media developed are all discussed.

(The Result of Need Analysis)

In order to determine the target and learning needs, information about the learners' current state need to be gathered. The first question aimed to gather information about the students' attitudes toward English lessons. The result shows that the majority of students have a generally positive attitude toward learning English. The second question was used to find out the students' necessities related to the students' goals in learning English. From the table, it can be concluded that a large majority of students perceive improving their English proficiency as a primary goal.

The third question shows most of the students indicated that they have difficulty in understanding English words. Moreover, most of the students struggle with pronunciation, which can impact both oral communication and comprehension. Regarding to the students' wants, topics such as daily activities, food and drinks, kinds of transportation, part of a house, and date, day and time are favored likely because they are directly relevant to students' lives and daily experiences.

Regarding to the input, most of the students prefer learning vocabulary through playing games. Students prefer to learn between 11 to 20 words for each unit and work in groups of 3 to 4 members. For the teacher's role, the majority of students value the teacher's role in explaining material through interactive questioning and answering, and appreciate the teacher's assistance in understanding the aim of the task. For the students' role, they engage by actively working on tasks related to the learning material.

Regarding the multimedia design, the majority of respondents prefer multimedia that features kids as characters, uses colorful visuals, uses Comic Sans MS font style, and the letter size varies depending on the function or content of the page. The majority of respondents indicated that background sound is sometimes required in media, the answer key for exercises is required at the end of the activities or exercises, they also prefer the background to be different for each unit of the media, the pronunciation guidance is required in media, and respondents prefer to find correct spelling required in the interactive multimedia.

The result of the interview with the English teacher are presented in the following analysis. 1) Time Allocation for learning English: The teacher mentioned that English learning occurs for 2 lesson hours per week. The teacher expresses doubts about whether this amount of time is sufficient to achieve learning objectives, highlighting concerns over the limited coverage due to students' basic vocabulary and comprehension skills. 2) Students' Vocabulary Mastery: the teacher assesses that students' vocabulary mastery in English is still low compared to their proficiency in the Indonesian language. This is attributed to limited exposure to English outside of school, where students rarely encounter the language. 3) The Materials Used: The teacher said that he primarily utilizes main textbooks and student worksheets (LKS) from publishers like Cemara or Persada to support English language instruction. 4) Vocabulary Improvement Activities: The teacher mentioned that the current vocabulary improvement activities include reading, group discussions, and occasional writing exercises where students write down and discuss the meanings of words. 5) Tools and Media Used: The teacher stated that normally, he employed a projector for teaching, although currently unavailable due to maintenance issues. 6) Obstacles in Using Media: The main obstacle mentioned is the lack of access to laptops or smartphones in school, hindering interactive

learning activities where students could directly engage with digital content. 7) Thought on Media Development: the teacher acknowledges the potential of advanced technologies such as AI (Artificial Intelligence) and interactive resources (IR) to support English language learning.

(The Course Grid)

After evaluating the findings from the needs analysis, the subsequent phase involved creating a course framework. This framework serves as a foundational blueprint for developing interactive learning multimedia. The course grid was structured using insights gathered from the needs analysis, the elementary school curriculum, and the syllabus specific to fourth-grade students. Seven key components were established within the course grid, detailed in the table below.

(The First Draft of the Multimedia)

After developing the course grid and the flowchart, the subsequent step involved creating the initial version of the interactive multimedia. The multimedia was structured as follows: (1) a media cover featuring the title and the grade level of the students; (2) an introduction to the characters featured in the multimedia; (3) a user guide for navigation; (4) a main menu providing access to different sections; (5) six developed units; (6) the author’s profile; and (7) references.

The first draft of the multimedia consisted of six units, each structured covered into three parts titled 'Let’s Get Started,' 'Main Materials,' and 'Let’s Reflect.'

Table 1. The Result of Expert Judgement

Aspect	Mean Value
Content Appropriateness	3.7
Language Appropriateness	3.6
Presentation Appropriateness	3.8
Screen Display	3.75
Multimedia Elements	3.6
Navigation	3.1
Interaction and Feedback	3.5
Total Mean Score	3.6

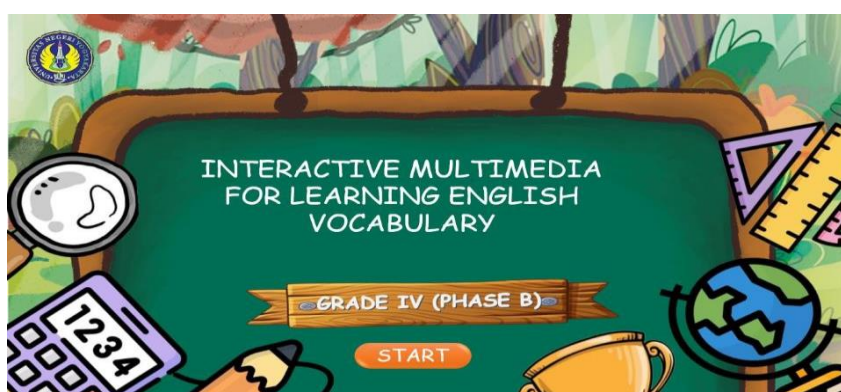


Figure 1 Design of the Cover



Figure 2 Design of the Characters

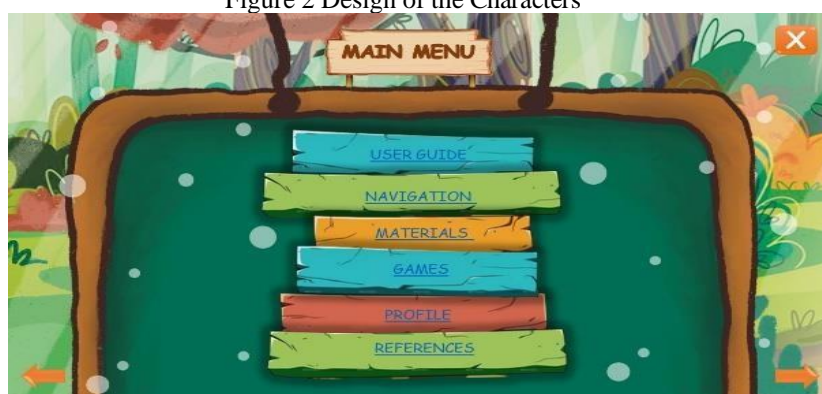


Figure 3 Design of the Main Menu

(The Expert Judgement and Revision)

In this phase, the researcher asked an expert to review the first draft of the media. The feedbacks provided by the expert were utilized to evaluate and refine the product. The expert judgment data were collected using a questionnaire. This questionnaire contained 31 items divided into seven aspects: content appropriateness, language appropriateness, presentation appropriateness, screen display, multimedia elements, navigation, and interaction and feedback. At the end of the questionnaire, there was a section for comments and suggestions to gather more detailed feedback.

To sum up the result of the expert judgment, the table shows that overall mean value for the product was 3.6 which means that the developed media categorized as “Very Good” product and appropriate to use for young learners for their media. Before the media are ready to be used, some suggestions were given by the experts and the product need some revision. The overall result described on the table below.

(Implementation)

The second draft of the interactive learning multimedia was made after revising and evaluating the first draft. The interactive multimedia material was implemented in the fourth grade students of SDN Perjuangan. It was done in two meetings and the students were asked to do all activities in unit 5 of the interactive learning multimedia. The students did not ask to do all the tasks in six units because the limitation of time. The students were interactive and attractive to do the activities using interactive learning multimedia. They felt challenged with the interactive learning multimedia. Because the limitation of the time, the researcher could not teach the students with all the materials in the interactive learning media. In order to get the objective data, they were asked to read the whole units of the interactive learning multimedia.

(Evaluation)

After implementing the interactive learning multimedia, the researcher conducted an evaluation. The evaluation was used to know the quality and the appropriateness of the developed materials. The result of the evaluation was to know whether the product was good and or should be revision again. To obtain the data for the evaluation, the researcher used the interactive multimedia evaluation questionnaire. The result shows that the overall mean value was 3.4. The average score was in the range $3.25 \leq x \leq 4$. Thus, the result of the interactive learning multimedia evaluation was categorized as “very good” and appropriate for the fourth grade students of SDN Perjuangan.

Discussions

This research aim to develop interactive learning multimedia in learning English vocabulary for young learners. This research took place at SDN Perjuangan. The number of respondents was 28 students of Class IV. This research adapted the research procedure by Jolly and Bolitho in Tomlinson (2011). For assessing target needs, the researcher drew upon theories proposed by Graves & Xu (2000) and Hutchinson & Waters (1987). The exploration of learning needs was guided by Nunan's (2004) theoretical model. In addressing multimedia design aspects, the researcher incorporated insights from both Graves (2000) and Stemler (1997).

As stated by Vaughan (2011), the interactivity of multimedia software is determined by the user's ability to control its' content based on their preferences, including the timing and type of information presented. In line with that, the overall score of the exert judgement related to the interactive multimedia is 3.6, which is categorized as “very good”. Therefore, the interactive learning multimedia is appropriate and interactive.

Additionally, this interactive learning multimedia proves beneficial for students, aligning with Yeh & Wang (2003) proposed advantages of interactive learning. Their research highlights several key benefits of such tools. Firstly, interactive multimedia is expected to enhance vocabulary retention, helping students better remember and internalize new words. Secondly, it increases student engagement, making the learning process more captivating and participatory. Lastly, these tools provide immediate feedback, allowing learners to quickly understand their progress and correct any mistakes. These features collectively contribute to a more effective and dynamic vocabulary learning experience, supporting the value of interactive multimedia in language education.

The findings of this study regarding the appropriateness of the interactive learning multimedia for enhancing students' motivation to learn English align with Anyan et al (2023). They stated that adopting the interactive multimedia technology in education can attract focus and interest in students.

CONCLUSIONS

Based on the results and discussions in the previous chapter, it can be concluded that the developed interactive multimedia is interesting and improve students' motivation in learning English vocabulary. The interactive multimedia were believed to be an appropriate learning media to improve students' motivation. It successfully captures students' attention and interest during the teaching and learning process. Additionally, the limitations of the media were addressed through the implementation of interactive multimedia. The inclusion of audio and video provided various fun learning activities, thereby reducing the students' boredom. This led to increase students' confidence in participating in classroom activities. The use of interactive multimedia in the teaching

learning process facilitated students' learning of English vocabulary through audio and video. The interactive multimedia was believed to be highly effective in facilitating the students to motivate their learning process.

CONFLICTS OF INTEREST STATEMENT

There are no conflicts of interest among the authors. The content of this manuscript has been read and approved by all authors, and no financial interest need to be disclosed. We confirm that this manuscript is original and hasn't been considered by another publication.

AUTHOR CONTRIBUTIONS

Wardah Mawaddah Lubis contributed as a researcher by conducting observations at one of the schools involved in the study and by participating in the writing of scientific article. Mrs. Dyah Seytowati Ciptaningrum served as the supervising lecturer, offering guidance, motivation, feedback, and direction throughout the process of accomplishing this scientific article.

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