Developing teaching material design of basic English Vocabulary based on interactive multimedia for Elementary School

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Abstract
Teaching English vocabulary to children in the classroom should begin as early as possible because childhood is a golden age when everything may be absorbed simply and rapidly. Language holds the belief that the earlier children learn a foreign language, the easier it is for them to master it, and that children may learn a language more quickly and with less difficulty than adults. This research aims to develop a learning design instructional material model of basic English Vocabulary based on interactive multimedia for elementary students and to increase knowledge and skills of language, especially for elementary school students. Development of learning model and instructional material design followed a research design and development model designed. This research is an extensive process in designing the students’ needs and develop the product or course material of basic English vocabulary to increase the ability or skills of elementary students in learning language through interactive multimedia. The sample of this research is the students at one of the elementary schools in Makassar, South Sulawesi, Indonesia. The research showed a learning model based on the interactive multimedia syllabus and instructional material design of basic English Vocabulary. The researchers suggested that formative assessment should be undertaken each time the materials are delivered to determine which components should be modified to increase the materials' instructional and motivating value. Furthermore, summative evaluation should be carried out in order to make a policy decision on whether or not to use instructional materials based on real evidence of their success.

Keywords:
Vocabulary learning of English; integrated language skills; interactive multimedia; elementary school; teaching materials.

1 INTRODUCTION
Language is a very important medium of communication in students' intellectual, social, and emotional development and supports students' success in learning all fields of study. In this era of globalization, almost all modern science and technology uses English. English is an international language that is indispensable in facing globalization today, so it is important to learn it from an early age. English is an international language that has an important role in our lives because the language has become an obligation to be studied by various levels of society, from elementary school students up to universities or the general public (Pennycook & Candlin, 2017). Mostly, in all aspects of social interaction, we always encounter English both orally and in writing. Given this, English needs to be learned by all levels of society so that not a few take courses in formal and non-formal educational institutions supported by quality guidebooks that are their needs.

Teaching English vocabulary to children through the learning process at school should be introduced early because early age is a golden age where everything can be absorbed easily and quickly. Language has the view that the earlier children learn a foreign language, the easier it is for children to master the language, and it is easier for children to acquire language more quickly without much difficulty than adults (Gorys Keraf, 2009). Primary school education has a learning system that can increase students' curiosity about English vocabulary. Including English as one of the subjects in elementary school is very good because it can trigger children's curiosity in learning English early. One of the important factors in learning English for children is a teacher who cares about the needs of their students, because the implementation of learning English for children still has many weaknesses and shortcomings. In addition to mastering English vocabulary and skills, a teacher must also master teaching English to children. Students sometimes often feel bored learning English because they do not know the existing vocabulary. Vocabulary is one of the important factors in learning English. When children start lessons and stop because of vocabulary, children become lazy to learn, especially with inappropriate teaching techniques.

Learning English at school includes four skills, namely: listening, speaking, reading, and writing. The four skills are integrated (Oxford, 2001). Proficiency in vocabulary is the most important thing that students in learning English must master. Students' lack of vocabulary is influenced by several factors, including lack of reading because it is not interested in reading. Therefore, to increase student vocabulary, the teacher must use appropriate and interesting media, namely interactive multimedia that uses application models in the media. Therefore, this study aims to find out the model of developing interactive multimedia-based English vocabulary learning for elementary school students in Makassar and the application model of learning basic English vocabulary based on interactive multimedia for elementary school students in Makassar. Several theories are relevant for child development psychology and related to language learning, including foreign languages. These theories become the rationale for the establishment of English subjects starting from elementary school. Piaget and Brunner put forward these theories. Their theories can be related to child development because they emphasize the levels of cognitive development experienced by children, the need for social interaction, and adult assistance in encouraging children to learn.

Piaget put forward a theory of developmental psychology related to the cognitive element. Children learn from the environment around them by developing what they already have and will interact with what is found around them. In interacting, they will take action to solve the problem, where the learning process occurs. All children are active learners.
New knowledge is the knowledge that the child himself actively compiles. At first, it happened related to the concrete objects in the surroundings, then enters his mind and is followed by acting, then the action is digested and understood. In that way, what is in the "mind" is seen as something that is obtained from the action (action), then the "mind" develops, and the child's actions and knowledge will adapt, and something new happens. There are four stages of child development, namely, sensory-motor stage from birth to two years of age, preoperational stage, age two to eight years, concrete operational stage, age eight to eleven years, and formal stage, age, 11-15 years or more (Zwingmann et al., 2012).

By pay attention to the four phases of development, we can see the phase where Indonesian elementary school children, namely children aged 6-12 years. Of course, they are at the end of the preoperational stages up to the concrete operational stages, not until the beginning of the formal stages. This means that children of primary school age need to receive attention according to their grade level. The child's mind develops little by little under the development of knowledge and intellectual skills towards the stage of a more logical and formal way of thinking. Each time children reach a new developmental phase, their abilities increase and become one with their previous thinking power level. Two of the four transitional periods, developmental periods, usually occur when children are in elementary school, language teachers should be able to follow the characteristics and changes in their cognitive phase of development.

The initial vocabulary that children know is obtained from the speech in their environment. The types of vocabulary that exist are main words and function words. Children master the main vocabulary first because it consists of nouns, verbs, and adjectives. Of the three main vocabularies, it is easier for children to master nouns because they are more concrete vocabulary that can be identified according to their category. Everyone can combine the vocabulary with being meaningful. As part of the language system, vocabulary is a grammatical unit to convey the intent and purpose of using language. Elementary school students are concrete thinkers. They learn best through active involvement. Involvement in the active use of language can be made more meaningful when it is linked to experiences and real things in children's lives. Vocabulary is a set of words that are known by a person or other entity or are part of a particular language. A person's vocabulary is defined as the set of all words understood by that person or all words that that person is likely to use to construct new sentences (Schmitt, 2019). The wealth of a person's vocabulary is generally considered a reflection of his intelligence or level of education.

For the elementary school level, vocabulary learning can be developed by multimedia usage that influences children's literacy learning (Zhou & Yadav, 2017). Multimedia includes a combination of content forms from text, audio, still images, animation, video, and interactivity. In other words, multimedia is the use of computers to present and combine text, sound, images, animation, and video with materials and connections so that users can navigate, interact, create, and communicate. Multimedia can be defined into two categories, namely Multimedia Content Production and Multimedia Communication. Multimedia Content Production uses several different media (text, audio, graphics, animation, video, and interactivity) in conveying information or producing multimedia products such as video, audio, music, film, game, entertainment, etc. It can also be said to use several different technologies that make it possible to combine media (text, audio, graphics, animation, video, and interactivity) in new ways for communication purposes.

2 Research Method

2.1 Study Design and Area

The researchers applied Research and Development design (Gay et al., 2011; Laws et al., 2013). The main objective is not to test the theory but to develop a product for use in teaching English in elementary schools. The product is in the form of a role-playing based English vocabulary learning tool. This research was carried out in one of the elementary schools in Makassar City, South Sulawesi, Indonesia that uses English as local content. The objects to be studied are the learning materials used, elementary students who participated in the learning, and teachers who organize learning. Learning materials were designed in the form of a role-playing based basic English vocabulary learning device. The development of the material was adjusted to the interaction model and the pedagogical principles that underlie the development of the learning materials. The procedures and results of the development of the learning materials were documented according to the development diary. The implementation of learning using role-playing based vocabulary learning materials was carried out by involving students and teachers. Teachers prepared technical instructions for teachers and students who participated in this learning in developing materials, role-playing based vocabulary learning, and following the lesson well. The research test subjects consisted of learning experts and teaching materials, teachers, and Elementary School students. Field trials were carried out in class according to the systematic section of the research flow. The selection of this class was based on the consideration that the class has an effective learning vision.

2.2 Research Systematic

The study was planned to last for eight months. Phase I (first) research was conducted to develop learning materials and supporting devices with expert tests. The products produced in the first three months are prototype learning devices and supporting learning devices. Teaching materials were developed based on learning theories of vocabulary. The results of learning materials were validated by English language experts or teaching materials development experts. In phase II (second), research activities include limited field tests of teaching materials. The trial aims to test the effectiveness and practicality of the resulting learning devices. The field trial involved teachers and students who were the test subjects. The field test consists of a small group test and a broad test. The class that became the trial location was limited, namely one class of Elementary School students in grades IV and V. In stage III, research activities are packaging and dissemination of learning materials or products produced. After dissemination, various inputs are used as material for improvement to produce complete learning materials and become learning materials that are ready to be widely produced.
2.2.1 Teaching material development procedure

2.2.1.1 Definition
The definition is the identification stage. At this stage, the researcher examines the curriculum and syllabus used, studies learning theory and teaching materials, and identifies the right form of vocabulary.

2.2.1.2 Design
The design is related to the selection of formats and the initial design of learning devices accompanied by learning designs and assessment instruments. The selection of the model aims to determine the form of teaching materials used in linguistic learning. Format selection was made by setting models, approaches, and learning strategies that are under the designed learning materials. The design is carried out through the following steps: 1) identifying learning needs, 2) identifying and writing down basic competencies and their indicators, 3) identifying appropriate teaching materials, 4) developing learning strategies used, and 5) developing teaching materials. The results of this design become prototype-1. To support the application of learning materials, researchers designed the learning materials used. The learning materials designed consist of a learning implementation plan, student books, teacher's books, and student worksheets.

2.2.1.3 Development Stage
The development stage aims to produce prototypes of learning materials that experts have validated. The prototype of teaching materials and learning materials that were designed were validated by several validators consisting of experts in English learning and development of English teaching materials, and practitioners of English lessons. The validator assessed teaching materials, lesson plans, student/student books, teacher books, and student/student activity sheets. Based on the validation of experts and practitioners, the researchers analyzed the content, language, and design of learning devices. The results of the improvements gave birth to prototypes of 2 teaching materials and their supporting devices. The field trials carried out included: limited field trials and extensive field trials. Through the field trials, it was found that the responses of teachers and students to teaching materials and their supporting devices were obtained. In the final revision/enhancement, the researchers made revisions based on limited field trials, teacher and student responses, and researcher observations.

3 RESULTS AND DISCUSSION
In this chapter, the researchers describe the research results, including making syllabus and lesson plans, making English teaching materials, and compiling student worksheets. The results of this research analysis are presented successively to see the alignment of the goals and achievements of each step. The first stage of this research was carried out by analyzing the needs and problems especially related to learning basic English vocabulary in Elementary School. At this stage, the researchers conducted a field study and discussion with the English teacher in Elementary School. In the second stage, the researchers designed and prepared the syllabus and lesson plans, drafts teaching materials and worksheets to learn basic English vocabulary in Elementary Schools.

3.1 Elementary English Syllabus
The preparation of the English vocabulary syllabus is adjusted to language skills because in learning English, vocabulary is not taught separately but is integrated with language skills, such as listening, speaking, reading, or writing skills. Learning language in an integrated way enables learners to use language skills in normal communication (Oxford, 2001). To fully develop their communicative skills, children must use language in various places and diverse ways. They also need to understand that language may be enjoyable to utilize (Nazarova, 2017). In compiling the syllabus, the research team followed the guidelines for compiling a syllabus.

3.1.1 Learning implementation plan
The preparation of the learning implementation plan consists of core competencies, basic competencies, indicators, learning objectives, learning materials for learning methods, learning steps, learning resources, and assessments. The learning objectives are focused on achieving basic English vocabulary skills for Elementary School students, including activities: practicing conversation using "interactive media", writing down the meaning of new words in the media, pronouncing and spelling the new words, according to the media displayed. Teachers should use interactive video multimedia in teaching and learning activities (Andriani, 2016).

3.1.2 Teaching Materials
Teaching materials are arranged based on learning objectives with topics or themes related to students' daily lives. The preparation of teaching materials is carried out by providing activities that are adapted to the learning media, including reading and repeat, then a list of words is given, Read the word, Look and Practice. In spelling or reading and repeat activities, students are asked to listen and repeat vocabulary readings. Then, they were also asked to demonstrate vocabulary, pay attention and practice the words displayed in the learning media, and show words that match the given media in front of the class. However, Elementary School English teachers work with pupils who have varying degrees of English competence, with one-third of the students have never learned English before and another third having read Harry Potter in English (Chien, 2012). Elementary school English teachers should consider designing teaching materials that may accommodate learners’ differences. A successful teacher understands how diversity can affect learning and strives to create a classroom that values diversity (Tileston, 2010).

3.2 Assessment of Teaching Materials
To find out whether a material or teaching material meets the standards or deserves to be used as teaching material, it is necessary to hold validation by an expert. The assessment results that have been obtained are analyzed based on the scores
given to each assessment item. These values were added up and averaged. The scores and assessment categories used can be seen in the Table 1 below.

<table>
<thead>
<tr>
<th>Average Score</th>
<th>Score Range</th>
<th>Assessment Teaching material category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 - 55</td>
<td>Poor</td>
</tr>
<tr>
<td>2</td>
<td>56 - 75</td>
<td>Good</td>
</tr>
<tr>
<td>3</td>
<td>76 - 89</td>
<td>Very good</td>
</tr>
<tr>
<td>4</td>
<td>90 - 100</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Furthermore, the validator's assessment of teaching materials can be seen in the following Table 2.

<table>
<thead>
<tr>
<th>Validator 1</th>
<th>Teaching Material</th>
<th>Content</th>
<th>Language</th>
<th>Performance</th>
<th>Average score</th>
</tr>
</thead>
<tbody>
<tr>
<td>87</td>
<td>88</td>
<td>86</td>
<td>90</td>
<td></td>
<td>87.75</td>
</tr>
<tr>
<td>Validator 2</td>
<td>89</td>
<td>86</td>
<td>89</td>
<td>91</td>
<td>88.75</td>
</tr>
</tbody>
</table>

Based on Table 2 above, validator 1 assigns a value for each component. For teaching materials, validator 1 gave a score of 87 in the very good category, the content component got a score of 88 in a very good category, the Language component got a score of 86 with a very good classification, and the performance of teaching materials scored 90 in the excellent category. The average value of the four components is 87.75 in the very good category. Furthermore, validator 2 assigns a score for each component as follows: for teaching materials, the value given is 89 in a very good category, the content component scores 86 very good, the language component scores 89 in a very good category, and for the performance component of teaching materials gets a score. 91 in the excellent category, the mean value of validator 2 is 88.75 in the very good category. However, for further research, each time the materials are taught, formative assessment is required to determine which elements of the contents should be updated to improve the materials' instructional and motivating value (Kandaswamy, 1980).

### 3.3 Assessment of Learning Outcomes

In this case, summative evaluation is used to decide whether to use instructional materials based on real evidence of their effectiveness (Kandaswamy, 1980). To assess student learning outcomes related to basic English vocabulary skills, the assessment of prototype teaching materials and supporting devices needs to be carried out by experts. The next step is that the research team used teaching materials and all its supporting devices to teach English vocabulary to Elementary School students through "interactive media". This activity was carried out as a limited trial of using teaching materials and supporting devices, which was carried out using action research. This activity was started by giving a pretest of English vocabulary to students. The aim is to determine the level of their basic English vocabulary skills before using teaching materials and supporting materials. Students' English vocabulary skills covered several aspects: word meaning, pronunciation, spelling, and words in sentences.

After compiling the syllabus, lesson plans, draft teaching materials, and student worksheets, it is necessary to explain how the teaching materials are presented. Teaching materials that have been prepared were presented using interactive media. However, before students start learning the words listed in the media, they were first taught to read or repeat vocabulary with the correct pronunciation, stress, and intonation. After that, they were asked to understand the meaning of the new words in the conversation. In the next step, they were asked to practice the vocabulary in front of the class. The teaching materials and supporting devices have met the requirements as teaching materials in the good category. However, the research team still needs to improve it based on the suggestions submitted to the validator, such as the content of teaching materials, use of language, and appearance or appearance. Regarding the content of teaching materials, the research team still needs to add some exercises that attract students' attention to study them, especially those related to their daily lives or those around their environment. In terms of language use, there are still expressions that are difficult for them to understand because of grammatical factors or vocabulary that they do not know. The research team had to use simple grammar and vocabulary that was not too difficult. In addition, the layout of the pictures in each lesson (lesson) still needs to be improved so that it looks better and more attractive.

### 4 Conclusion

The development of basic English vocabulary learning materials in Elementary Schools has been carried out based on the signs set out in the curriculum. English vocabulary learning materials were categorized as good. Therefore, it still needs improvement in terms of content, language, and appearance or appearance. Teaching materials for basic English vocabulary in Elementary Schools use interactive and communicative media because these strategies are expected to attract students' attention. The strategy is interactive, communicative, and fun. Implementing basic English vocabulary learning in Elementary Schools through interactive media is expected to improve Elementary School students' proficiency in English vocabulary. Developing elementary English vocabulary learning materials through interactive and
communicative media is one of the learning strategies Elementary School teachers can use to teach English vocabulary. It can involve students practicing or demonstrating vocabulary according to the models and media showed by each, respectively. Elementary English basic vocabulary teaching materials should be used based on interesting and fun learning principles for students to increase students’ interest in learning English vocabulary. For further research, the researchers recommended that formative assessment should be conducted each time the materials are taught to determine which elements of the contents should be updated to improve the materials’ instructional and motivating value. In addition, summative evaluation should be conducted to decide whether to use instructional materials based on real evidence of their effectiveness.

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