

## THE DEVELOPMENT OF MULTIMEDIA-ASSISTED LANGUAGE LEARNING TO IMPROVE ENGLISH SKILL OF ELEMENTARY SCHOOL STUDENTS

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**Abstract.** The purpose of this study is to analyze (1) the phases of developing a Multimedia Assisted Language Learning (MALL) for Elementary school students, (2) the attractiveness of the MALL, and (3) the effectiveness by analyzing the student's achievement. Formative evaluation is done to measure the quality of MALL. This product was evaluated by 1 subject matter expert and 1 media specialist. The subjects of the research trial included 91 students, consisted of 34 students for the research instruments trial, 7 students for the small group trial, and 50 students for the field trial. Data were collected using questionnaires and tests (pre-test and post-test). The data were in the form of recommendation for the product improvement, Likert-scale analysis, and test scores. The result of this research and development shows that the attractiveness of the developed multimedia, observed from: (1) the product appearance aspect is in a good category, with the average score of 4.00, (2) the learning material aspect is in a good category, with the average score of 4.02, (3) the motivation of learning using the multimedia is in a very good category, with the average score of 4.09. The average score improvement of the pre-test score to the post-test is around 20 or equal to 35%. The t-test result indicates that there is a significant improvement of student's average scores from the pre-test to the post-test, with  $p < 0.05$ , we can conclude that the developed MALL are effective for Elementary School students.

**Keywords:** *MALL, Multimedia Assisted Language Learning, English for elementary*

### INTRODUCTION

English is a commonly used language in international communication. In Indonesia, English is used as a second language in learning. English is the most important foreign language learned in Indonesia. A foreign language is a language that is not used as a communication tool in a particular country where the language is taught. Schools in Indonesia where the original language does not use the language of English certainly keep trying to facilitate their students to learn the language of the English since early. Although it has long included in the educational curriculum in the country, many students admitted they often face problems when studying English. In this case the role of English

is necessary both in mastering technology and interact directly. As a means of global communication, English should be actively controlled both oral and written. As the world's lingua franca, English is not only as a medium of global communication, the English language is also a need for academic mastery in aspects of language. The purpose of learning English in general is that the English language can be used smoothly as a medium of communication, both verbally and in writing and also of course be able to master the four language skills (listening, reading, writing, speaking). With more and more people are able to communicate in English, it will be the sooner the process of knowledge transfer, because a lot of books written in English, mastery of English also have a positive impact in all social activities, can gain a lot of friends and even business associates.

Research in the field of Child Psychology shows that at the age of five to Elementary school, children are very fast to absorb knowledge, including while learning a foreign language. Various studies have proven that early age is the most sensitive language learning age. The teaching of English for children ranging from kindergarten and Elementary school has been widely offered in various schools. Teaching English for this age group requires special handling that is different from teaching to other age groups. To understand how to provide education or learning to children, a teacher must understand the psychology of their development. Learning process will be more effective if learners actively participate in the learning process. Thus, learners will experience, live, and draw lessons from experience. Ultimately learning outcomes will be part of their thinking and experience. The learning outcomes of the learning experience will be more embedded in the mind and the conditions thus require learners to think more creatively.

Multimedia can be motivating and engaging, and it can provide learners with quick and easy access to a wide range of new material. It can also encourage learners to take control of their own learning and sustain their interest. However, multimedia imposes demands on teachers to manage learning in new and innovatory ways (Collins, Hammond & Wellington, 1997). Although research on cognitive effects and their implications for instructional design is rich, research on the effects of motivation in a multimedia learning context is surprisingly scarce. Since one of the major goals of providing multimedia instruction is to motivate students, there is a need to examine motivational elements (Zheng, 2009). The use of Multimedia Assisted Language Learning (MALL) in learning allows students to learn more complete and interesting material, and more easily remembered. Interesting learning makes it easier for students to remember the information they get in more depth so that it will last longer in the brain. Using multimedia in learning English, students will gain an interest in learning. Furthermore, the existence of the game in the package of teaching materials of MALL is considered to be of significant influence to increase students' interest and motivation to learn English.

## **OBJECTIVES OF THE STUDY**

Learning is a process that starts from the aim to resolve the problems and gaps that exist. Learning should also be able to make the learning in these subject learners capable of build new knowledge not merely obtaining the transfer of science teachers. The learning approach that still relies solely on conventional teaching method must be addressed and the learning supporting devices also need to be prepared. There are several reasons behind the need to develop instructional design of MALL:

1. The fact that the learning outcomes achieved have not been in accordance with what is expected;
2. The development of science and technology so rapidly that human resources need to be improved.
3. Demands professionalism of teachers in managing learning activities
4. Changes in learning environment resulting from modification of new learning equipment and procedures.
5. The fact that there are still areas in Indonesia can have an internet network so that still requires learning materials that can be learned offline

In order to master the technology well, adequate knowledge is needed so that we can use it in the face of the demands of a global world filled with competition. This study aims to determine:

1. Systematic steps in developing computer multimedia products for learning English in Elementary School.
2. The appeal of developed multimedia computers.
3. The effectiveness of learning products developed in facilitating students to achieve learning competencies as expected.

## **LITERATURE REVIEW**

### **Multimedia for Teaching and Learning**

The development of Information and Communication Technology very rapidly, so that educators should be sensitive and able to see the potential use of games in learning which is certainly tailored to the goals to be achieved and the characteristics of the learners themselves. Improving the quality of education, especially the quality of learning is the responsibility of all of us by still adapting the progress of Information Technology and adjust to the development of psychology and cognitive learners. More and more schools are increasing their educational facilities by providing computer labs as learning resource centers. This triggers an increase in the material content of teaching materials, which can be used to enrich conventional learning such as listening to teacher talks in the classroom. Student learning experiences need to be enriched with materials that are more interesting so as to spur the spirit of learning. Some experts in learning claim that the use of computer-based multimedia is very potential to create effective learning, because of its ability to combine various media such as video and audio with high quality and arranged by the learners.

What does the term multimedia really mean? Though actually plural in its spelling, multimedia represents a “singular” integration of media objects, such as text, graphics, video, animation, and sound, to represent and convey information. (Don’t be put off by the term “objects.” Substitute “elements” or “ingredients” or simply “stuff.”) Although not all types of media objects must be included in a given presentation, multimedia gets its name because at least several such media elements are combined in one communication (Simkins, et. al, 2002). Multimedia is any combination of text, art, sound, animation, and video delivered to you by computer or other electronic or digitally manipulated means. It is richly presented sensation (Vaughan, 2011). Multimedia data can directly represent real world entities in the digital format. Digital multimedia data can be processed by

computer programs to produce software effects that were never before possible. Many multimedia objects can be found in daily life, and these objects can now be processed by computers (Tse, 2008).

Before creating any of the action of a game, Animators devise a storyboard, which is a series of detailed sketches displaying the progression of the action. The storyboard is a sequence of simply drawn pictures that visually depict a program. In preparing interactive multimedia, normally the script is a storyboard (Reddi & Mishra, 2003). The storyboard lays out the user interfaces, maps the branching flow of the action of the game, and even may specify the behavior of any of the game's computer-controlled characters or creatures. Thus, the storyboard becomes the plan of action for the animation work, much as a programmer's flowchart maps the program that he or she is writing (Taylor & Parish, 2007). The animator interactively instructs the computer about the image, what movements it must make, and how such characteristics as shading and color should shift as the image progresses through the playing out of the scene. Animators receive a list of all the activities the creature or character will perform within the game, and they create a series of appropriate movements for them. Koumi (2006) a computer package enables students to explore how processes change when parameters are varied. This constitutes a far greater degree of interactivity than is possible through print or stand-alone audiovisual media. There is also the advantage of a multimedia package all on one machine. Using CD-ROM or through the internet, extended segments of good-quality audio and video can be incorporated into computer packages.

Art and animation work is the most significant part of multimedia development. The computer in a simulating mode permits students to explore time and space, to mix explosive chemicals together in a simulated laboratory without destroying themselves and the lab, and to investigate complex problems using instruments and methodology which would be excessively costly or not possible at all without computer (Walker & Hess, 1984). Computer multimedia system incorporate the computer as a display device, management tool, and/or source of text pictures, graphics, and sounds. More than simply presenting information in multiple formats, they integrate these multiple media into a structured program in which each element complements the others so that the whole is greater than the sum of its parts. Multimedia system can provide a structured program of learning experiences to individuals and groups, with a special emphasis on multisensory involvement (Heinich, et al., 1996). To achieve effective personalization, a variety of information about the learner is required. Tailoring multimedia environments to individual learner cognitive characteristics is becoming a major means for achieving a true learner-centered experience for learners through their interaction with multiple content sources, presentation formats, and delivery means (Kalyuga, 2008).

### **English Learning in Primary School**

Recognizing the vital importance of learning English as the gateway to academic success (Alford & Nino, 2001) is one of the reasons this research was conducted. Language is the symbolization of an idea or a thought that the message sender wants to communicate and received by the recipient of the message through certain codes either

verbally or nonverbally. The language the child uses in communicating and adapting to his environment is to exchange ideas, thoughts and emotions. Language can be expressed through speech that refers to verbal symbols. Humans interact with each other through communication in the form of language. Communication occurs both verbally and non-verbally that is with writing, reading and signs or symbols. How humans can use language as a way of communicating has always been an interesting question to discuss so that it brings up many theories about language acquisition.

Language teachers throughout history have interspersed their grammar or course material with what often seem like lighthearted games, but they do actually touch the language directly and are challenging. And most importantly perhaps games are fun (Howard, Williams & Herd, 1994). It is actually this flexible definition of game that becomes an asset when we're working with games in the classroom. For all practicality, when dealing with students, teachers, and learners, we can use a functional definition of game and say it is anything that the participants will let us get away with calling a game. More precisely I can define it as a purposeful, goal oriented rule-based activity that the players perceive as fun (Klopfer, 2008). The development of language or communication in children is one aspect of the stages of child development that should not escape the attention of educators in general and parents in particular. The acquisition of language by children is the greatest and most remarkable achievement of human beings. That is why this issue has received great attention. Language acquisition has been studied intensively for a long time. At that time we have learned many things about how children speak, understand, and use language, but very little of what we know about the actual process of language development.

### **Using ICT in Language Learning**

Language learning is no longer limited in traditional settings or approaches. With the usage of modern advanced technologies, language learning can be different experiences as we have so far. However, it is possible to encounter challenges and problems while introducing powerful learning technologies into practical application. Researchers' efforts on exploring the potential of ICT in language learning will be worthwhile because ICT presents a potential solution to the problems encountered in today's language education (Lan & Hsu, 2015). Owing to the rapid development of information and computer technology, numerous studies have investigated how to harness state-of-the-art technologies for effective language teaching and learning in the past decades. The unique features of modern information and communication technologies (ICT), such as 3D virtual environments, mobile computing, embodiment, and visual learning, have been expanding the potential and possibility of promoting the idea of learning languages anywhere and anytime in immersive and interactive contexts. Language learning is no longer limited in traditional settings or approaches. With the usage of modern advanced technologies, language learning can be different experiences as we have so far. However, it is possible to encounter challenges and problems while introducing powerful learning technologies into practical application (Lan & Hsu, 2015).

Studies about the use of computer games as foreign language learning has found that the participating children thought that computer games should be easy to access and operate, and that they should also be a means for releasing their emotional distress (Butler, 2014). Previous studies from Naba'h, et. al (2009) were investigating the effect of using an instructional software program of English language on the achievement of secondary students in Jordan, show that one possible explanation for the effect of using computers for teaching English grammar is that computers enable each individual to work according to his own pace. The user may move freely from one component to another as he wishes and according to his needs. Franciosi (2016) research results suggest that computer game-based approaches to foreign language education in real-world classrooms can improve transferability of learned vocabulary.

## RESEARCH DESIGN

. In this research and development of multimedia assisted language learning is packaged in the form of educational games using computers. Before creating a multimedia learning package, the first step that researchers do is needs assessment, a systematic way of determining the gap that exists between where the organization is and where it wishes to be (Lee & Owens, 2004). MALL for learning English in elementary school, developed based on research and development model, broadly cover three phases:

1. Design, by doing the development of learning design and product display design.
2. Production, which is the stage of making multimedia learning software.
3. Formative evaluation, by testing to a number of respondents to know the feasibility of the product when used in learning.

### 1. DESIGN

- Determining instructional goal
- Preparing lesson plans
- Creating flowcharts and storyboards
- Preparing evaluation instruments

### 2. PRODUCTION

- Developing the learning content
- Developing pre-test and post-test questions
- Material collection (animation, picture, sounds, etc)
- Develop a complete learning

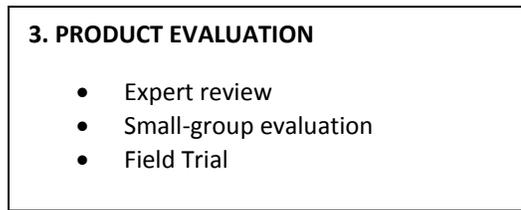


Figure.1. MALL Development phases

To measure the effectiveness of learning products is done by assessment by experts, and students. Instrument of data collection using questioner and test. Data collection tool in the form of questionnaire, using Likert scale (Sukarjo, 2006: 52-53). Each item is divided into five scales: 5 excellent, 4 very good, 3 good, 2 fair, and 1 poor.

Table 1. Conversion of Quantitative Data to Qualitative Data with Scale 5

Scale	Category	Score	
		Formula	Range
1	Excellent	$\bar{X}_i + 1,8 Sd_i < \mathbf{X}$	$4,08 < \mathbf{X}$
2	Very good	$\bar{X}_i + 0,6 Sd_i < \mathbf{X} \leq \bar{X}_i + 1,8 Sd_i$	$3,36 < \mathbf{X} \leq 4,08$
3	Good	$\bar{X}_i - 0,6 Sd_i < \mathbf{X} \leq \bar{X}_i + 0,6 Sd_i$	$2,64 < \mathbf{X} \leq 3,36$
4	Fair	$\bar{X}_i - 1,8 Sd_i < \mathbf{X} \leq \bar{X}_i - 0,6 Sd_i$	$1,92 < \mathbf{X} \leq 2,64$
5	Poor	$\mathbf{X} \leq \bar{X}_i - 1,8 Sd_i$	$\mathbf{X} \leq 1,92$

$\mathbf{X}$ = Empirical Score

Ideal rate ( $\bar{X}_i$ )=  $\frac{1}{2}$ (min. score + max. score).

Ideal standard deviation ( $Sd_i$ )=  $\frac{1}{6}$ (min. score + max. score).

Pre-test and post-test are done on the students, the test result is calculated the average value, then to know whether there is an increase of average value before and after learning using MALL. To know the significance of difference or a significant increase in the score of students from pre-test to post-test t test is done.

## RESULT AND DISCUSSION

The process of developing this learning multimedia outline through several stages: design, production, and evaluation. The results of experts validation and formative evaluation can be seen in Table 2, Table 3, Table 4 and Table 5.

Table.2. Product Validation by Material Experts

Aspect	Score	Conclusion
The truth of the concept	4,50	Excellent
Learning Content	4,00	Very good
Ease of implementation	3,50	Very good

Table.3. Product Validation by Media Experts

Aspect	Score	Conclusion
Appearance	4,89	Excellent
Programming	5,00	Excellent
Learning content	4,20	Excellent

Table.4. Small Group&Field Trial Evaluation Result

Evaluation	Aspect	Average Score	Conclusion
Small-group	Appearance	4,09	Excellent
	Learning content	4,02	Very good
	Learning motivation	4,29	Excellent
Field Trial	Appearance	4,00	Very good
	Learning content	4,02	Very good
	Learning motivation	4,09	Excellent

To know the effectiveness of this MALL, in field trial conducted pre-test and post-test. Description of data and frequency distribution of pre-test and post-test scores from field trials is shown in Table 5 and Table 6.

Table.5. Frequency Distribution of Pre-Test and Post-Test Score

Score Range	Greetings		Introduction		Things in the Classroom	
	pre-test	post-test	pre-test	post-test	pre-test	post-test
1 - 20	2	0	5	1	2	0
21-40	6	4	18	5	8	3
41-60	12	2	19	8	13	5
61-80	12	8	8	21	22	15
81-100	18	36	0	15	5	27
Average Score	66	86	47	71	61	79
Increase		20		24		18

Tabel 6. Average Score Improvement

Total average pre-test score	58
Total average post-test score	78
Average increase	20

In order to conclude whether there is a significant increase from the pre-test score to the post-test score, then a statistical analysis of the mean difference test using t test for paired samples. Obtained correlation probability value ( $p$ ) = 0,000 smaller than the level of significance of 0, there was a significant difference between the pre-test score and the post-test, in other words there was a significant increase between the students' scores before and after learning using MALL. In other words, there is a significant increase of test scores before learning to use MALL compared with after learning to use MALL.

## CONCLUSION

Systematic steps in developing this MALL outline include 3 phases: design, production, and evaluation. The attractiveness of the product is viewed from three aspects, namely: the appearance of learning products, learning materials, and the students learning motivation. The empirical data of the experimental results show that: (a) the appearance of learning products is in good category, with average score 4,00 on scale 1-5, (b) aspect of learning material included in good category, with score average 4.02 on scale 1-5, (c) the aspect of learning motivation using MALL is in the excellent category, with an average score of 4.09 on a scale of 1-5. Viewed from the learning

aspect, the software is effective, as evidenced by the increase of score from pre-test (58) to post-test (78) by 20 or 35%, and significant improvement of learning result from pre-test score to post- test with p value <0.05.

Multimedia Assisted Language Learning for learning English in elementary schools is improved in terms of: (a) the appearance of the software, so it is better if the instructions for program use are easy to understand and clear, developers should also pay attention to the suitability of the use of letters, colors, images, and animations. The voice of a voice must be chosen by the person with the appropriate accent, able to read the narration and speak the dialogue clearly and correctly, (b) the learning materials will be better if presented more fully and prepared by adjusting the applicable curriculum. (c) software can be made more interesting by adding material or exercise questions presented in the form of games, but it also needs to be equipped with a video that is in accordance with the daily environment of students.

Use of multimedia is very useful because it can present the material through the media text, images, movies, sounds and graphics. Multimedia also has hypermedia facilities, this facility provides several advantages, such as: (1) creation of authentic environment or situation, because listening aspect at once combined with view aspect as happened in real world, (2) integrated skill activity that is learning activity which involves Integrated skills of listening, reading, speaking and writing are more easily patterned, (3) students have the freedom to run activities in accordance with their desires and abilities in selecting preferred materials and repeating things that still need, Learning is necessary, determine the sequence of learning steps where for each individual is not necessarily always the same.

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