Developing English Interactive Multimedia (IMM) for Primary School Students

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Abstract

This study aimed at developing English interactive multimedia (IMM) for sixth grade students of second semester in Singaraja. This study was a development study consisting of ten stages, namely: (1) need assessment, (2) instructional analysis, (3) learners and context analysis, (4) writing performance objectives, (5) developing assessment instruments, (6) developing design of English IMM, (7) developing English IMM, (8) product evaluation, (9) revision, and (10) the final Product. This study used experts' judgement and limited field try-out as product evaluation. Six experts evaluated the product on three aspects (content, instruction and multimedia). The result showed the score of 3.96 (very good) within 0 – 4.00 scale. In limited field try-out, the subjects were the sixth graders of three elementary schools in Singaraja representing all accreditation grades (grade A, B and C). The result showed students' responses trough post questionnaires: 68.02% of total responses indicated very good English IMM; and 30.08% indicated good English IMM. It means that the English IMM has been developed appropriately for both individual learning and classical instruction.

Keywords: English Interactive Multimedia, ICT Integration, Multimedia in Elementary Education, Multimedia Development

1. Introduction

Cameron (2001:29) pointed out that second and foreign English young learner sometimes face a notable contrast between the kinds of activity they did in classroom and what they need to master English for. Therefore, adaptation of "real life" experience into classroom activities is really needed such as reading a bus timetable, buying cinema tickets, asking for direction of certain building, etc. About the relation between young learner and ICT integration, Newby et al. (2006:15-16) stated that educational technology serves as the bridge of Basic Learning, Research and Theory to deal with Practical Teaching-Learning problems. Therefore, educational technology can be used as a "bridge" to relate theories and real life experience optimally in classroom environment.

Empirical findings show that using ICT for teaching English as a foreign language brings positive impact to both students learning motivation and achievement. Abazi-Bexheti,

et al. (2007) conducted a research on the development of Interactive Multimedia Learning Systems (IMLS) for IT-Skills Course at South East European University. The aim of this study was to develop an Interactive Multimedia Learning Systems (IMLS) and investigate its effectiveness towards students' success rate. The population of this study consisted of 1200 students attending the course in the academic year of 2005/2006. The result was concluded that full time students using the IMLS as additional learning tool had in total 8% greater success rate comparing to those that did not. Also, in part time studies, the students that used the IMLS had in total 9%greater success rate comparing to other part time students that did not use the IMLS.

In early April 2010, Nusir, Alsmadi, Al-Kabi and Shardqah (2010) developed an Interactive Multimedia Learning System for the children of Primary Schools in Jordan. The final aim of the study was to propose interactive courses that can be part of the study material which introduce information materials to low grade students in an attractive format. Moreover, another purpose of the study was to deal with students with special needs such as hand disabilities, visual, or hearing impairments. To evaluate the impact of using multimedia interactive educational tools on education, a case study was designed and executed on two classes from Yarmouk University model school. Each group was further divided into two groups. The same educational material which was about basic math skills is taught through the traditional educational methods along with the multimedia interactive one. When the average score of the two groups were compared, the multimedia average score appeared to be 0.9 higher than the traditional method.

Moreover, Suarcaya (2011, 2008) found that using online exercises for both Vocabulary and Listening classes could increase students learning motivation. He further stated that using online exercises help students increase their participation in accomplishing online vocabulary tasks (Suarcaya, 2008).

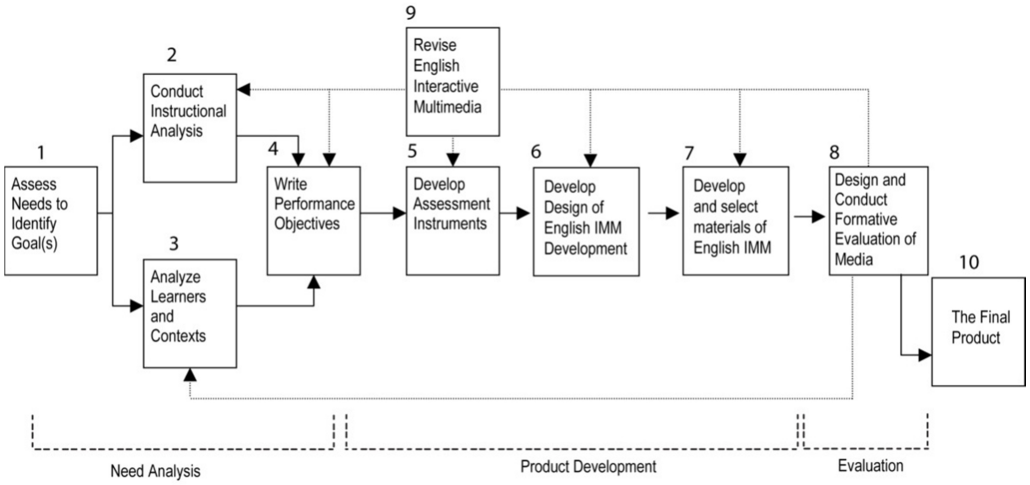
In Indonesian context, however, among 146,393 elementary schools, only 10% of total schools in Indonesia equipped with multimedia room (Dirjen Dikdas, 2010). This fact shows that Indonesia's primary education needs more ICT integration in classroom. Moreover, from preliminary observation done on January 26th, 2012, it was clearly observed that even equipped with multimedia room, English was not usually taught in Multimedia Room at elementary schools in Singaraja.

Webb (2007, p.41) states that the condition above is also influenced by ICT barriers at three levels such as teachers (usually related to competence, motivation and training), school system (usually related to syllabus, curriculum, and rigid assessment structure), and school condition (usually related to the absence of ICT devices and software as media). Scarcity of educational software and lack of adequate material also becomes the barrier of successful ICT integration (Bingimlas, 2009, p.240). Therefore, to fill the needs of good multimedia software or material, this study was focused on development of interactive multimedia.

2. Method

The design of this research was based on a model proposed by Dick, Carey, and Carey (2005, pp.98-99). This design has been adapted based on the focus of current research (the development of English IMM). The design is described in Figure 1.

å **Figure 1**. Research Design adapted from Dick, Carey and Carey (2005) System Approach model for Designing Instruction



There are ten stages in this study as described in the following.

1) Goals were identified with content outline approach in which it was found out that a convincing evidence of performance problem was exist. And this performance problem was outlined to be caused by insufficient amount of content learnt by students. Based on those analyses then a conclusion of high need was drawn as a reason to develop the English IMM.
2) Instructional analysis was conducted to obtain data of instructional media, source and activity from syllabus, lesson plans, teaching-learning activity, and teacher by using

observation sheet, interview guide, and document analysis guide. The major purpose of instructional analysis was to identify the skills and knowledge that should be included in the product being developed (Dick, Carey, and Carey, 2005, pp.39).

3) Learners and learning environment were also analysed to collect supportive data from learners and school facility by using observation sheet, interview guide, and questionnaires for students' learning style and technology literacy. Dick, Carey and Carey, (2005, pp.39) stated that the designer must also consider the characteristics of the learners, the context in which the media will be delivered, and the context in which skill will eventually be used.
4) The result of the previous analyses was concluded into some aspects which describe the kinds of knowledge, skills, and attitudes that will be learnt by students. And from those aspects, performance objectives were derived which later should be fulfilled by the English IMM.
5) Based on the performance objective, assessment instruments (IMM performance rubric) were constructed to assess the quality of English IMM. These assessment instruments were in form of criterion-referenced rubrics composed of items or performance task that directly measure skills described in one or more performance objective. Three subject-matter expertises (content, instruction and multimedia) were chosen as related subject based on the criteria in performance objectives. The final form of these assessment instruments were rubrics for aspect of content (15 criteria), instruction (8 criteria), and multimedia (10 criteria).
6) To fulfil the criteria in assessment rubrics, a scratch design was developed in form of storyboards. In this phase, a prescription and first consideration were made upon the product.
7) The next phase was developing English IMM using Adobe Creative Suite 3 and other supportive software. This was the main step of this study which was done by considering the result of analyses previously. The development of the English IMM consisted of selecting and developing material which was done based on the storyboard.
8) Formative evaluation in form of expert judgement and limited field try-out was conducted to find out weaknesses and improve the quality of English IMM. By conducting expert judgment, this study has pointed out some weaknesses of the English IMM by using English IMM evaluation rubrics. Formative evaluation in form

of limited field try-out was done with sixth grade students of three schools representing all grades of accreditation (random school for grade A, B and C). The results of this formative evaluation were points of revision concluded from limited field try-out and expert judgment.

9) From formative evaluation, some weaknesses were pointed out and revised. Revision after the formative assessment had shown which portion of the product should be revised. The revision come from all experts related to various aspects such as content, narration, navigation, user interface, and many others.
10) The phase of final product is the end of the research design in this study. However, the final product of this study is a tentative English IMM since there is still a need for further research regarding the effectiveness of English IMM.

3. Findings

The English IMM developed in this study consists of four topics namely "food and beverages", "public places", "transportation", and "sport and hobby". Each of the topics contains 7 activities namely "vocabularies", "conversation", "interactive", "listening", "reading", "writing" and "song".

3.1 Features of the English IMM

The **vocabulary courseware** consists of up to 32 vocabularies for each topic with sample of sentence and pronunciation. The **conversation courseware** consisted of conversation between two or three characters with explanation on every utterance representing language features. The **interactive courseware** is a media allowing students to ask question to the computer and respond to computer's question. The ending of the program was depending on student's responses. Moreover, various feedbacks also provided based on students' answers. **The listening and reading activities** are different for each topic. It was adjusted to the objective of the lesson and topic. There are various types of games such as finding object, rearranging map, solving problem or request, etc. The **writing courseware** was divided up to three level of difficulties. The easiest level only required students to write the correct spelling of a vocabulary in a picture. The medium level was designed to guide students to construct a paragraph. And the hardest level was designed to help students choosing a correct answer and constructing a paragraph. The last part is the **song**. It was designed for additional learning source related to the topic. This part was designed and

considered based on requests from teachers regarding their experience that students love singing very much. Screenshots of the English IMM can be seen in Figure 2.

Figure 2. Screenshots of courseware: conversation (upper left), reading (uppper middle), vocabulary (upper right), writing (bottom left and middle), reading (bottom right)

Beside those features, this English IMM also has some beneficial features which are not commonly found in other multimedia courseware. Those features are listed in the following.

- Covering all topics and most English skills learnt in sixth grade second semester
- Developed to support all learning preference. Lots of combined activities and types of instruction
- Developed to minimize teachers' role with feedback and examples
- Developed as a self-assisted learning where students may learn by themselves
- Using Bilingual instruction
- Compatible to smallest screen size and common computers' specification
- Adjusted to lowest skill of using computer
- Equipped with self-installation on flash player
- English IMM has smaller size compared to common multimedia
- Distributable to all over the world through website or upload servers

1. Expert Judgement

Expert judgment was conducted after product development. The English IMM was evaluated by experts from three fields of expertise: curriculum, instruction, and multimedia. There were two experts from each field to decrease subjectivity and increase validity of the evaluation. This study used two phases of expert judgment with different purposes on each

phase. The first one was to find the weaknesses of English interactive multimedia. The result of this phase became the points of revision. The second phase was to assess the English interactive multimedia from aspects of content, instruction and technical application.

In this expert judgment, there were some aspects being evaluated. For the aspect of content, the aspects being evaluated were: the relation between content and objective, sequence of content being delivered, availability of glossary and reference tools, important terms and concept being highlighted, availability of exercises and examples, availability of questions to check understanding, relation between courseware and related skills, availability of basic interaction in the courseware, reinforcement of various media (graphic, video and sounds) towards content, grammar, spelling, pronunciation, contents' etiquette (no ethnic, slang, rude name, or curse words) and content adjustment to learners' level.

For the aspect of instruction, the aspects being evaluated were: clearness of objective, relevancy of feedback, review of previous lesson, availability of pre-assessment, length of course elements, appropriateness between content and schools' curriculum, appropriateness between exercises and objectives, and tendency of the media in motivating students.

For the aspects of multimedia, the aspects being evaluated were: flexibility, navigation, users' interface (clearness of main menu, buttons' function, easy access, information of current courseware, and arrangement of pop up window), relevancy of interactivity, usage of interactivity, availability of real-life simulation, usage of font, usage of colors, relevancy of graphic, video and sound, and user friendliness.

Based on experts' judgment, the final mean score of all aspects is 3.96 from 0.00 – 4.00 score scale. This score indicated a very good quality of English interactive multimedia based on experts' point of view.

2. Limited field try-out

To assess the applicability of the English IMM, a limited product try-out was done at the three schools at various dates in the second week of June 2012. Since the developed English IMM is both teaching supports and learning supports, the English IMM was attempted as both of them. Therefore, teachers were asked to use the program in explaining, and students also use the program in learning.

The results of limited product try-out were collected through questionnaire, interview and observation. Questionnaires were spread to students of the three schools to collect their perception and opinion upon English IMM after they used the product. The participants'

rating below were converted from students' answer (for example, very good=4, good=3, average = 2, poor= 1, completely very poor= 0). The questions were all in Bahasa Indonesia to avoid misunderstanding. Result of post questionnaires on limited field try-out can be seen in Table 1.

Table 1.

Result of post-questionnaires

No.	Question	Rating from participants				
		4	**3**	**2**	**1**	**0**
1.	Are you happy to learn with multimedia?	82.43%	16.22%	1.35%	0.00%	0.00%
2.	Do you understand when learning with multimedia?	39.73%	54.79%	5.48%	0.00%	0.00%
3.	Is multimedia helpful in learning?	60.81%	39.19%	0.00%	0.00%	0.00%
4.	How is the general quality of multimedia?	56.76%	40.54%	2.70%	0.00%	0.00%
Percentage of total rating		68.02%	30.08%	1.90%	0.00%	0.00%

The result above indicated that the English IMM has been developed appropriately to be used both for individual learning and classical instruction for sixth grade students of second semester in Singaraja in the academic year of 2011/2012.

To collect teachers' opinion upon the English IMM, an interview was conducted right after the limited product try-out:

> "The software is good and we can see students enjoy it very much. Some students even ask when will they have a same class like this. The implementation is also simple and it is easy to guide students when they find problems. I think I have to say thankyou for covering every topic in the second semester. And I hope in the next year, a similar research can be conducted for the other semester.

From teacher's point of view, the developed English IMM was seen as a very good multimedia, helpful, easy to use and covering the whole instruction and curriculum of the second semester in the sixth grade of elementary school.

4. Discussions

Those positive responses of teachers, students and expert judgment showed that the procedure of developing English interactive multimedia as described in the research design of this study can develop a good English IMM. Moreover, teachers and students' responses on the limited product tryout are in line with what was said by Wegerif and Dawes (2004) that

ICT also helps teachers and learners to create interesting classroom environment where interactivity and opportunity to communicate enable all to participate.

The combination of various media such as video, audio, photos, graphics, text, and interactive questions that can be controlled by user were responded positively by teachers and students. This finding is in line with what is said by Newby et al. (2006:15-16) that interactive multimedia can bring a close relation between theory and practical teaching-learning in a fun and interesting way.

5. Conclusion

Within the framework of research and development design proposed by Dick, Carey and Carey (2005), a good English interactive multimedia had been appropriately developed. The research design includes ten steps : (1) need assessment, (2) instructional analysis, (3) learners and context analysis, (4) writing performance objectives, (5) developing assessment instruments, (6) developing design of English IMM, (7) developing English IMM, (8) product evaluation, (9) revision, and (10) the final product.

Experts' judgment showed a positive result with score of 3.96 from 0.00 – 4.00 scale. This score indicated a very good quality of English interactive multimedia based on experts' point of view. On the other side, students responded positively to the developed English IMM.68.02% of students' responses in the questionnaires were showing a very good quality of English IMM. Moreover, 30.08% of total responses indicated a good quality of English IMM.

Those results indicated that the English IMM had been developed appropriately to be used both for individual learning and classical instruction for sixth grade students of second semester in Singaraja in the academic year of 2011/2012.

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