# Developing a Character-Based Interactive Multimedia for Seventh Grade Junior High School Students

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**Abstrak**

Kurikulum 2013 membutuhkan insersi pendidikan karakter dan integrasi teknologi. Penitian ini bertujuan untuk 1) mengidentifikasi karakteristik dari multimedia interaktif berbasis karakter, 2) menjelaskan proses perancangan multimedia interaktif berbasis karakter, 3) menjelaskan produk multimedia interaktif berbasis karakter, dan 4) menjelaskan kualitas multimedia interaktif berbasis karakter. Penelitian ini merupakan Penelitian dan Pengembangan yang menggunakan pendekatan metode campuran, *sequential exploratory design,* dan *Four-D model*. Dari penilitian tersebut, ditemukan bahwa 1) karakteristik dari multimedia interaktif berbasis karakter adalah a) integrasi kemampuan bahasa, b) mendukung 3 jenis gaya belajar, c) mengikuti tahapan pada Kurikulum 2013, d) mengandung nilai karakter, e) menggunakan deskripsi sebagai topic utama, dan f) mengintegrasi permainan, gambar, suara, animasi, dan program tambahan untuk memperkaya kosa-kata, 2) proses dari perancangan multimedia interaktif berbasis karakter dilaksanakan melalui pemilihan media dan format yang sesuai, penyisipan suara dan gambar, perancangan *layout*, dan penerbitan, 3) produk multimedia interaktif berbasis karakter dalam bentuk aplikasi *Flash* yang meliputi 5 tema pembelajaran dan terdiri dari 10 bagian, dan 4) multimedia interaktif berbasis karakter memiliki kualitas yang tinggi.

**Kata kunci:** Insersi Pendidikan Karakter, Integrasi Teknologi, Multimedia Interaktif, Multimedia Interaktif Berbasis Karakater

**Abstract**

Curriculum 2013 required technology integration and character education insertion. This study aimed to 1) identify the characteristics of character-based interactive multimedia, 2) describe the process of designing the character-based interactive multimedia, 3) describe the product of character-based interactive multimedia, and 4) describe the quality of character-based interactive multimedia. This study was a Research and Development Research which used mixed method approach, sequential exploratory design, and Four-D model. From the study, it was found that 1) the characteristics of character-based interactive multimedia are a) integrating skills, b) supporting 3 kinds of students' learning style, c)following steps recommended by Curriculum 2013, d) containing with character values, e) using Description as main topic, and f) integrating game, picture, audio, animation, and additional program for

enriching vocabulary, 2) the process of designing character-based interactive multimedia were conducted by selecting appropriate media and format, inserting picture and audio, designing layout, and publishing, 3) the product of character-based interactive multimedia is in a form of Flash application which covers 5 learning themes and consists of 10 parts, and 4) the character-based interactive multimedia has a high quality.

**Keywords :**Character-Based Interactive Multimedia, Character Education,

Interactive Multimedia, Technology Integration

## INTRODUCTION

The use of technology (ICT) in teaching and learning is required on Curriculum 2013. It is clearly stated in *Permendikbud. No. 65 Tahun 2013* that the use of ICT should be integrated in teaching and learning process. In the thirteenth principle of teaching and learning, it is stated that "*pemanfaatan teknologi informasi dan komunikasi untuk meningkatkan efisiensi dan efektivitas pembelajaran*". The use of ICT in teaching and learning process is believed to increase the efficiency and effectiveness of teaching and learning process. Beside, the use of interesting media in teaching could maintain the students' focus on learning by giving them some fun activities (Elsy, 2013, p. 3). It is also believed that using ICT-based media gives access for students to information, tutorials, and assessment which will help them learn more productively (Verecio, 2014, p. 2). The use of ICT in teaching and learning process is influenced by the technology development around the world in the globalization era which creates an atmosphere of following the technologies development.

Beside of the need of technology, the need of affective aspect is also the main concern on Curriculum 2013. Affective aspect is included in Curriculum 2013 because character education has become a central issue is often discussed at the level of education and one of an important pillar in the life of the nation (Hidayanti, Zaim, Rukun, & Darmansyah, 2014, p. 1) and educational institutions have a duty and responsibility to conduct character education for the students to develop their moral (Kamaruddin, 2012, p. 6). Therefore, In Curriculum 2013, the teaching and learning activity inserts affective aspect in order to focus on character education which could give positive impact to the students' moral development in society (Molina, 2014).

The teacher has two big obligations in implementing Curriculum 2013. Beside of teaching in the classroom, the teacher also needs to prepare ICT media and also to make a plan of character education insertion in teaching and learning activity to fulfill the affective aspect. Therefore, Character-Based Interactive Multimedia is created as a tool in fulfilling the need of technology and character education insertion.

Interactive Multimedia is one kind of ICT-based media which can be provided in teaching and learning process to fulfill the need of technology integration and character education insertion in teaching

and learning process. Interactive multimedia is digital materials, including software programs, applications (apps), broadcast and streaming media (National Association for the Education of Young Children, 2012, p. 1) which consists of the combinations of audio, video, text graphics, and animations that are used to deliver the e-learning (Baggio, 2008, p. 4). Interactive multimedia could motivate the students in learning since interactive multimedia use multi-sensing communication which can increase the students' motivation in learning (Nusir, Alsmadi, Al-Kabi, & Sharadgah, 2012, p. 4) and also make the process of learning and remembering more effective (Hronová & Knihová, 2012, p. 5). The use of graphic visualization is very interesting for the students (Kamat & Shinde, 2008, p. 7) and creates lasting impact to the students which make them easily remember and also understand certain words of items in the screen. Since interactive multimedia gives a beneficial effect in teaching and learning, there is a need to design a good interactive multimedia to enhance students' new knowledge and assist them in learning and applying the lesson (Rogers, 2002 as cited in Faryadi, 2012, p. 1). Besides, Interactive Multimedia is one of the solutions in dealing with students who have differences in learning styles and knowledge background since it integrates media elements that can engage human information retrieval methods which are visual, auditory, reading and kinesthetic (Noordin, Ahmad, & Hooi, 2011, p. 1).

Based on the explanation above, this study to do a research on finding out the students' problems and needs in learning English, and also to designs and develops an interactive multimedia for teaching English for second semester of seventh grade of junior high school which include character education to fulfill affective aspect. Therefore, through this research, a character-based interactive multimedia for second semester of seventh grade of junior high school was developed

The problems of this study can be shown as follow:

(1) How are the characteristics of character-based interactive multimedia for seventh grade students identified?
(2) How is the character-based interactive multimedia for seventh grade students designed?
(3) What is the type of product of character-based interactive multimedia for seventh grade students developed?
(4) What is the quality of the developed character-based interactive multimedia for seventh grade students?

Relating to the problem above, the purpose of this study can be shown as follow:

(1) To describe the process of identifying the characteristics of character-based interactive multimedia for seventh grade students.
(2) To describe the process of designing the character-based interactive multimedia for seventh grade students.
(3) To describe the type of product of the developed character-based interactive multimedia for seventh grade students.
(4) To describe the quality of the developed character-based interactive multimedia for seventh grade students.

The result of this study is expected to be one contribution to the development of knowledge and theoretical insights about the media used in English teaching and learning activity. Besides, it also gives contribution for teacher and students in enhancing teaching and learning activity.

## RESEARCH METHOD

This research is a research and development (R&D) research. In doing the

research, the researcher used mixed method approach and takes sequential exploratory design from Creswell, Plano, Gutmann, & Hanson in 2003. In designing and developing the interactive multimedia, the researcher used Four-D Model provided by Thiagarajan, Semmel, and Semmel (1974, p. 5-9). This model is called as Four-D Model since the process is divided into four stages of Define, Design, Develop, and Dissemination and in this study, the researcher only used three stages from the four stages provided, they were Define, Design, and Develop.

In "Define" stage, the researcher found out the problems and needs of seventh grade students in learning English. Besides, concepts, contents, learning materials, learning objectives and character values, which were integrated in character-based interactive multimedia, were also identified and analyzed in this stage.

In "Design" stage, the researcher designed the prototype of interactive multimedia. It was started from redefining students' needs, selecting appropriate media and format, inserting picture and sound, and designing layout for beta-version of character-based interactive multimedia.

In "Develop" stage, the researcher developed and improved on beta-version of character-based interactive multimedia created by using feedback. In this stage, feedback was received through formative evaluation and the materials were revised. The feedback was given by the experts who did the evaluation on character-based interactive multimedia. There were two kind of feedback which was gained in this step; they were 1) the quality of character-based interactive multimedia, and 2) comments, suggestions, and recommendations toward the development of character-based interactive multimedia.

The subjects of this study were the experts who evaluate the developed character-based interactive multimedia. The experts were two people who judged the quality of character-based interactive multimedia. They were from the expertise of English teaching with multimedia.

The techniques used in collecting the data were conducting observation, spreading questionnaire, conducting interview, analyzing document, and evaluating and testing product. In collecting the data, this study used several instruments. The instruments used were questionnaire, interview guide, field note, recorder, document anlysis, and expert judgment rubric.

The data was analyzed both qualitatively and quantitatively. The data was analyzed through data description and interpretation depended on the types of data acquired by the researcher. The result of questionnaire was analyzed descriptively with some interpretation. The result of interview, recoder, field note, and document analysis was analyzed qualitatively. Descriptive statistics was used in some points of expert judgments' rubric through 15 instructional aspects of quality of the interactive multimedia. Since this study used two experts, a single final score for overall quality of the developed character-based interactive multimedia was gained from mean score from each expert. The final score then was classified into a 3 range-scale consisted of some categories in which the score is interpreted, where "1" indicated the media has low quality, "2" indicated the media has medium quality, and "3" indicated the media has high quality. Beside of the quality of character-based interactive multimedia, in the expert judgment

evaluation checklist there is a column for writing comments, suggestions, and recommendations. The comments, suggestions, and recommendations given by the experts were analyzed qualitatively.

## FINDINGS

To identify the characteristics of character-based interactive multimedia for seventh grade students, the researcher did need and problem analysis through four technique of collecting data: conducting observation in classroom, spreading questionnaire to the students, conducting interview with the teacher, and analyzing documents.

As the result, it was found 6 characteristics of Character-Based Interactive Multimedia. The characteristics of Character-Based Interactive Multimedia are 1) The Character-Based Interactive Multimedia is used for integrated skills, 2) The Character-Based Interactive Multimedia supports 3 kinds of students' learning style which more focuses on Auditory and Visual activity, 3) The Character-Based Interactive Multimedia follows steps recommended by Curriculum 2013, 4) The Character-Based Interactive Multimedia contains character values, 5) The main topic used in Character-Based Interactive Multimedia is Description, and 6) The features of Character-Based Interactive Multimedia are game, picture, audio, animation, and additional program for enriching vocabulary.

To design a Character-Based Interactive Multimedia for seventh grade students, the researcher designed the prototype by using some software, such as Adobe Photoshop CS3, Asus Sound Recorder, Adobe Audition, Audacity, FaceQTM, and Macromedia Flash 8.

The process of designing character-based interactive multimedia was started from selecting appropriate media and format, inserting picture and audio, designing layout for beta-version of character-based interactive multimedia, and publishing the character-based interactive multimedia.

The product of character-based interactive multimedia for seventh grade students was in a form of Flash application. It is in .exe file extension. Character-based interactive multimedia covers 5 learning themes: *My Friends, Zoo, Market, Home Visit,* and *Farm*. *MyFriends* theme covers material of *CharacteristicofPerson*, *Zoo* theme covers material of *CharacteristicofAnimal*, *Market* theme covers material of *CharacteristicofThing*, *HomeVisit* theme covers material of *ActionofPerson*, and Farm theme covers material of *ActionofAnimal*.

The product of character-based interactive multimedia consisted of 10 parts: *Tittle Screen and Opening Menu, Main Menu, Conversation, Mini Game, Value, Question Session, Theoretical Framework, Quiz, Vocabulary Focus,* and *Credit. Title Screen* contained with program's title and also level of appropriate user. *OpeningMenu* contained of five buttons which represent each learning themes. The *MainMenu* consisted with buttons where the students could choose whether they wanted to play story, to review their vocabulary, to play quiz, to see credit, or to quit from character-based interactive multimedia. The *conversation* activity consisted with a short story that relates to the topic learned. This activity combined listening and reading at once. This activity represented *Observing* activity since the students could listen to the story while reading the script of conversation also. Besides, in the story also provided with *minigame* where the students should follow instruction given, such as "click" on character, animal, or thing to continue the story. The *value* emphasized on the moral value which can be gained from the story and made the students realize the moral value easily. The *questionsession* gave opportunities for the students to ask question to the teacher when character-based interactive multimedia used in classroom. It consisted with a question asking to the students whether they have question or not and represented the *Questioning* activity. The *theoreticalframework* consisted with theoretical framework of constructing

sentence. This part represented *CollectingInformation* and *Associating* activity. Since the main topic is descriptive, theoretical framework served the way to write a sentence or expression. *Quiz,* which represented *Communicating* activity, consisted with four sequenced games which were started from easiest level to complex one. The games provided in *Quiz* were *choosing correct picture, choosing correct answer, writing correct answer,* and *writing a sentence*. *Choosingcorrectpicture* was the first quiz appeared in character-based interactive multimedia. The students needed to read the clue given and guessed which picture were suitable with the clue. *Choosingcorrectanswer* was the second quiz. The students were provided with a sentence which had a missing word. The students needed to choose which word were appropriate to fulfill the missing word. *Writingcorrectanswer* was fill-in-blank activity where the students needed to type the correct word or words to fulfill the missing part of sentence. *Writingasentence* was a quiz which asked the students to write a sentence to describe a picture on the screen. The *vocabularyfocus* consisted with a list of vocabularies learned and also given examples in form of sentence to make the students more understand. The *credit* consisted with the referenced picture, audio, author, dubbing people, and also people who contribute with the development of character-based interactive multimedia.

To get the quality of the character-based interactive multimedia, the researcher used expert appraisal. Expert appraisal was a technique for obtaining feedback for the improvement of the character-based interactive multimedia. Feedback was received through formative evaluation and the materials were revised. There were two kind of feedback which was gained; they were 1) the quality of character-based interactive multimedia, and 2) comments, suggestions, and recommendations toward the development of character-based interactive multimedia. In order to gain feedback from expert judges, expert judgment rubric was created. The expert judgment rubric was adapted and combined from two sources. The first source was taken from Selection Rubric: Computer and Multimedia Software (Smaldino, Lowther, & Russell, 2012) and the second source was taken from Evaluation Rubric for Educational Apps (Lee & Cherner, 2015). The expert judgment rubric was compressed into a set of assessment rubric consisted of 15 aspects. The aspects included in expert judgment rubric were 1) Competencies & Objectives, 2) Content & Material, 3) Level of Material, 4) Character Education Insertion, 5) Age-Appropriate Language, 6) Skill Practice, 7) Learning Styles, 8) Stimulates Creativity, 9) Foster Collaboration, 10) Interest Level & Engagement, 11) Feedback on Error, 12) Technical Quality, 13) Ease of User, 14) User Guide & Directions, and 15) Interactivity. Expert judgment rubric was in a form of scoring rubric using 3 range-scales, where “1” indicated the media had low quality, “2” indicated the media had medium quality, and “3” indicated the media had high quality. The expert judges were two people who judged the quality of character-based interactive multimedia. They were from the expertise of English teaching with multimedia. They were Prof. Dr. I Nyoman Adi Jaya Putra, M.A. and Made Hery Santosa, Ph.D.. The experts evaluated the developed character-based interactive multimedia and gave feedback related to the developed character-based interactive multimedia to make it more appropriate, effective, and efficient.

From the result expert judgment rubrics, the quality of character-based interactive multimedia was identified. The result of the expert judgment rubrics can be shown as follows:

Tabel 1. Result of Expert Judgment Rubrics

| Number of Aspect | Score | |
|---|---|---|
| | Expert 1 | Expert 2 |
| **1** | 3/3 | 3/3 |
| **2** | 3/3 | 3/3 |
| **3** | 3/3 | 3/3 |
| **4** | 3/3 | 3/3 |
| **5** | 3/3 | 3/3 |
| **6** | 3/3 | 3/3 |
| **7** | 3/3 | 3/3 |
| **8** | 3/3 | 2/3 |
| **9** | 3/3 | 3/3 |
| **10** | 3/3 | 3/3 |
| **11** | 3/3 | 3/3 |
| **12** | 2/3 | 3/3 |
| **13** | 2/3 | 3/3 |
| **14** | 2/3 | 3/3 |
| **15** | 3/3 | 3/3 |
| **Total Score** | **42** | **44** |

Scores from the expert judgments were analyzed by calculating the mean score from each expert. A single final score for overall quality of the developed character-based interactive multimedia was gained from mean score from each expert. The final score then was classified into a 3 range-scale consisted of some categories in which the score was interpreted, where “1” indicated the media has low quality, “2” indicated the media has medium quality, and “3” indicated the media has high quality.

Based on the analysis above, the score for the character-based interactive multimedia was 2.865 which indicated that the character-based interactive multimedia has a high quality for teaching English for second semester of seventh grade students based on expert judgments evaluation results.

Beside of the score of character-based interactive multimedia, comment, advice, recommendation, and suggestion toward the development of character-based interactive multimedia were gained from the two experts.

From the experts, character-based interactive multimedia needed to be revised on user-friendly aspect, such as

an icon or a function for going back to main menu or to previous section, a clearer guidance on each section and opening screen, and smoother credit scrolling. Beside of the user-friendly aspect, it should be consisted of learning material short-introduction or points on choosing topic screen about learning topic and character-education which was learned on each topic.

Due to comment, suggestion, and recommendation, revision on character-based interactive multimedia was conducted based on evaluation given by the experts.

**DISCUSSION**

This Character-Based Interactive Multimedia had inserted the character value explicitly in conversation and emphasized more on value screen. Sugirin (2011) provided two techniques in inserting character values explicitly by (1) doing a brief lecturing on a certain virtue or vice, and (2) using written or recorded material under the theme of a virtue or a vice and the character value insertion in Character-Based Interactive Multimedia can be categorized as explicit mode by using written or recorded material under the theme of a virtue or a vice since in Character-Based Interactive Multimedia, the character value was explicitly stated on the screen through conversation and was emphasized through texts. This character value insertion was applied on reading and listening activity in conversation and value screen.

The Character-Based Interactive Multimedia could create meaningful learning environments in using technologies. As Jonassen (2001 as cited in Baggio, 2008, p. 15-16) stated there are eight characteristics needed to create meaningful learning environment when using technologies. The learning environment should keep learners to be active, constructive, collaborative, intentional, complex, contextual, conversational, and reflective, and the Character-Based Interactive Multimedia could fulfill seven characteristics from eight characteristics needed. The seven characteristics fulfilled in Character-Based Interactive Multimedia are active, collaborative, intentional, complex, contextual, conversational, and reflective. From Active aspect, Character-Based Interactive Multimedia could make the students consciously aware of process of teaching and learning since the material served in a form of program and the outcome of the program itself required the students to answer several question in Quiz which assessed the students' process of learning. From Collaborative aspect, Character-Based Interactive Multimedia could be as a mean to build communication and social support among the students since Character-Based Interactive Multimedia can be modified to be used in pair or in a small group. From intentional aspect, Character-Based Interactive Multimedia had a cognitive goal which could be reached by the students and could be integrated in classroom activity. From complex aspect, Character-Based Interactive Multimedia served a different level of learning in quiz started from the easiest level in choosing correct picture into complex level in writing a sentence which could encourage students' critical thinking. From contextual aspect, Character-Based Interactive Multimedia consisted of real-world contextual learning which were served through five learning theme that related to students' real-life. From conversational aspect, Character-Based Interactive Multimedia could foster students' ability in communicating and interacting through the material served and applied it in classroom activity with other students and with the teacher. From reflective aspect Character-Based Interactive Multimedia served a reflective session in vocabulary focus which could be a reflection for the students to increase their understanding on material learned. One characteristic which is not fulfilled in Character-Based Interactive Multimedia is constructive. Constructive indicates that the students are able to integrate prior knowledge in order to construct the new knowledge through the media. However Character-Based Interactive Multimedia can not fulfill constructive characteristic since the learning material served in Character-Based Interactive Multimedia is

for beginner-intermediate level which newly learn English.

As an interactive multimedia, Character-Based Interactive Multimedia can be categorized as a good interactive multimedia. The developed character-based interactive multimedia fulfilled the characteristics of good interactive multimedia served by Rochelle et al. (2000 as cited in Nusir, Alsmadi, Al-Kabi, & Sharadgah, 2012, p. 5). Rochelle have suggested that learning with interactive multimedia is most effective when characterized by active engagement, participation in groups, frequent interaction and feedback is provided, and connections to real world contexts are made. Character-Based Interactive Multimedia had involved an active engagement since this interactive multimedia consisted of various activities which could motivate and make the students actively participate in using the program. It also could gain students' participation in group since Character-Based Interactive Multimedia can be used individually, work in pair, either work in small group. Frequent interaction and feedback could be gain in quiz section, since the students could discuss the answer with partner or friends and also could gain feedback when they gave wrong answer. The learning theme provided in Character-Based Interactive Multimedia already connected to real world contexts and near to students' real-life.

Character-Based Interactive Multimedia also can be called as a good design of interactive multimedia as a tool of education. It could be seen this interactive multimedia fulfill the criteria of a good design of interactive multimedia as a tool of education provided by Huang (2005). He stated that A good design of interactive multimedia could allow the students to visualize difficult and naturally dynamic concepts, promote active learning, problem-solving, and critical thinking with interactive simulations and virtual environments, interact with the content with self-quizzes, and access content anytime, anywhere, at any situation. (p. 2). The Character-Based Interactive Multimedia served pictures, and animation as a visualization of the concept of learning. Besides, it also provided with audio to make the students more engaged in teaching and learning process. The Character-Based Interactive Multimedia is also provided with quiz which is assessed the students' learning progress. The level of the quiz itself is designed in rising level system which could encourage the students' critical thinking. The quiz is divided into four small sections, which is started with the easiest quiz with choosing correct picture until the complex level with writing a sentence. Since Character-Based Interactive Multimedia is a portable software program, the students could access it freely anytime, anywhere, at any situation, without installing any supporting programs.

## CONCLUSION AND SUGGESTION

From the result of findings and discussion, it was found the answer of all research questions.

To identify the characteristics of character-based interactive multimedia for seventh grade students, the researcher does need and problem analysis through four technique of collecting data: conducting observation in classroom, spreading questionnaire to the students, conducting interview with the teacher, and analyzing documents.

The process of designing character-based interactive multimedia is started from selecting appropriate media and format, inserting picture and audio, designing layout for beta-version of character-based interactive multimedia, and publishing the character-based interactive multimedia.

The product of character-based interactive multimedia for seventh grade students is in a form of Flash application and is in .exe file extension. Character-based interactive multimedia covers 5 learning themes: *My Friends, Zoo, Market,*

*Home Visit,* and *Farm*, and consists of 10 parts; *Tittle Screen and Opening Menu, Main Menu, Conversation, Mini Game, Value, Question Session, Theoretical Framework, Quiz, Vocabulary Focus,* and *Credit*.

The score for the character-based interactive multimedia is 2.865 from 3.00 scales which indicate that the character-based interactive multimedia has a high quality for teaching English for seventh grade Junior High School students based on expert judgments evaluation results.

Some suggestions can be derived from the result of analysis on result of observation, questionnaires, and interview. It is suggested for the teacher to provide ICT-media in teaching English which could fulfill the need of technology integration in teaching and learning activity. It is suggested to school administrator to add any ICT facility in classroom to make the integration of technology can be used optimally. For the other researcher could continue this study to develop another Character-Based Interactive Multimedia for other topics served in second semester of seventh grade Junior High School and or other topics served in first semester of seventh grade Junior High School, and could continue this study by testing the product of Character-Based Interactive Multimedia to second semester of seventh grade Junior High School students in order to find out the quality of product, the effect of using the product toward students' learning, and feedback from the students toward the development of the product.

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