

Development of Interactive Multimedia for Room Service Subject

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Article Information

Article history:

No. 579

Rec. May, 23, 2022

Rev. June, 23, 2022

Acc. August, 31, 2022

Pub. September 2, 2022

Page. 85 – 95

Keywords:

- Room Service
- Multimedia Interactive
- APPED
- Learning media
- Research and Development

ABSTRACT

In order to create optimal learning, learning media with new variations that are interesting but effective and advanced technology are needed. This study aims to develop learning media in the form of interactive multimedia based on Adobe Flash CS6 that is suitable for room service on course restaurant setting and service. This media is developed by research and development (R&D) and using the APPED (Analysis, Planning, Production, Evaluation, Disseminate) as the development model. The results which is quantitative data are then converted into descriptive analysis. The validation results by experts such as: 1) media expert the percentage is 99.2% which means that it is excellent quality, 2) by subject expert the percentage is 95% which means that it is excellent quality, 3) by language expert the percentage is 77.5% which means that it is good quality. For student acceptance responses, the percentage is 89.83% which means it is very positive. In conclusion this media is validated to be used with good quality.

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1. INTRODUCTION

Intentionally or not, technology has an impact on learning in the classroom [1]. Studying now no longer limited by space and time. Based on the Ministry of National Education referred to in [2] progress in the field of education will bring major changes to ICT, on the contrary the development of ICT will bring major changes to the world of education. Through quality education, it is hoped that human resources quality will be ready to face global challenges. It is matched with what is explained by [3] that excellent education is the motto of the current of globalization.

It is explained that one of the problems faced in the world of education in Indonesia, especially in universities that produce innovative and productive generations in the industrial era 4.0 is the lack of breakthroughs in research and development that support the industrial revolution 4.0 and the research and development ecosystem [4]. It is reported that developing countries have failed, completely or in part, to implement e-learning systems effectively [5].

Stated in [6] that the success factor for distance learning lies in 3 main factors, namely teachers, learners and technology. One of the external factors that influence the learning outcomes, includes the learning media used for delivering the material [7]. By using learning media during the learning process in the classroom, it is hoped that the thoughts, feelings, concerns and interests of students can be stimulated and students can receive and understand the subject matter from the educator well [8].

More so, to support the learning process carried out online during pandemic by lecturers, it is necessary to develop learning media, so that the learning process can run optimally in the pandemic era [9]. For this reason, it is important to note that the technology component in learning must be universal so that it can be used by everyone, and contain a tutorial or guide for use that is concise, simple but clear [6].

For the suitability of the current use of room service learning media, students think that the learning media is not suitable to be applied to practicum courses. So far, the learning media used to convey the theory of room service are in the form of power points, and Youtube illustration videos which have several differences from the guidebooks used and can cause errors.

Interactive multimedia is a computer-based independent learning media that integrates various elements of text, images, photos, audio (music, narration), video, and animation in one learning application product [10]. Interactive multimedia can present information that can not only be seen and heard but also carry out the commands in it simultaneously, so it is very effective and efficient in delivering learning materials. This is proved by the results of [11], which is the use of e-learning media with multimedia-built content can improve student learning outcomes.

Furthermore, several studies related to the development and effectiveness of interactive multimedia such as the research on the development of interactive multimedia with the APPED development model by [12] with results showing an increase in student learning outcomes and [13] with results of multimedia effectiveness reaching a percentage of 60% - 80%. This is in parallel with [14] which states that people are only able to remember 20% of what they see and 30% of what they hear. But people can remember 50% of what is seen and heard and 80% of what is seen, heard and done all at once. Thus, confirmed by [15] the use of interactive multimedia helps students understand better the material presented. Aside for those, there are still many of recent studies of interactive multimedia as such [16] [17]. This shows that the interactive multimedia is a very practical learning media [18].

Inspired by previous research, this research develops interactive multimedia that can be used in offline or hybrid classes, covers material from the scope of room service to pick up procedures, and finally there is a quiz to help students evaluate learning. Equipped with pictures, hypermap, voice control, video control and simulation control which makes it easier for students to understand room service procedures better. Besides that it is easy to distribute using a link or QR code.

Authoring tools are needed to create a unified interactive multimedia application program. One of the commonly used authoring tools to form interactive multimedia application programs is Adobe Flash CS6. The animation produced by Adobe Flash is a complex animation in which objects, backgrounds and display movements can be moved by the user interactively [19]. Moreover [20] stated that students will be more interested because the animations presented make learning not monotonous and based on research results [21] Adobe Flash can produce interactive multimedia that can increase students's motivation.

This study aims to develop interactive learning multimedia based on Adobe Flash CS6, especially for Room Service subject that can be used for optimal learning. In addition to theory and digital simulations with clear sources, interactive multimedia can provide options for quizzes. So that the lecturer can give quizzes to students regarding the understanding gained from the interactive multimedia used or as a form of evaluation of learning room service subject.

2. RESEARCH METHOD

This study is using research and development (R&D) method. The method (R&D) is a research method used to produce certain products, and to test the effectiveness of these products [22]. As for the development method, this study using the APPED development method (Analysis, Planning, Production, Evaluation, Dissemination). The explanation of the steps of the APPED development model is as follows [23]:

2.1. Analysis

The output of this step is a description of what kind of interactive multimedia will be developed. So that it can then be continued to the next stage. Requirement analysis is a systematic process in determining the goals or targets of the desired conditions in the presence of interactive multimedia.

2.2. Planning

Based on the results of the first stage of analysis, the outline of the material and the sequence of each material can be designed according to the analysis of learning outcomes. The material outline can be realized in the form of a multimedia content outline table which contains the topic of the material, the multimedia components used, the duration of time, learning resources and others. In this study, the design carried out related to the learning media developed was a description of the material, an outline of the content of the material, an audio script, and finally a storyboard.

2.3. Production

Production is a process that produces a product in this case is interactive multimedia. In this step, we manufacture products from prototypes of multimedia components (images, sounds, videos, animations) to packaging them in the form of interactive multimedia products using authoring tools. The output of this step is an interactive multimedia product that is functional and ready for formative evaluation tests.

2.4. Evaluation

Interactive multimedia evaluation can be divided into two, namely formative evaluation which is carried out during the development process with the aim of making the product better before the product is widely used by users. The first evaluation was carried out by three experts, namely subject expert, linguist and media expert. Further evaluation with groups of students covering aspects of appearance, language, system quality, and ease of use of media.

2.5. Dissemination

After the interactive multimedia product is declared feasible, the last stage is Dissemination. In this stage, interactive multimedia socialization is carried out to users and field trials, both in small and large groups. The trial used an assessment questionnaire on learning media to receive criticism and suggestions so that it could be seen whether the developed media was able to answer the problem of the gap in the condition of the previous learning media as formulated in the needs analysis.

The acquisition score is then converted into a percentage using [24] formula (1):

$$p = \frac{f}{N} \times 100\%$$

Description:

P = final percentage

f = the frequency in question

N = the number of respondents times the highest score times the number of questions
(1)

The assessment criteria in media validation use a percentage range following [24] as follows:

Tabel 2. Media Assessment Criteria

Achivement level	Qualification	Description
90%-100%	Very Good	No Revision Needed
75%-89%	Good	Revised As Necessary
65%-74%	Enough	Quite A Lot Revised
55%-64%	Not Enough	Revised A Lot
0%-54%	Deficient	Total Revision

Next is the assessment criteria in user trials according to [25]:

Tabel 3. Student Response Criteria

Percentage	Category
$85\% \leq RS$	Very Positive
$70\% \leq RS < 85\%$	Positive
$50\% \leq RS < 70\%$	Less Positive
$RS < 50\%$	Not Positive

3. RESULTS AND DISCUSSION

The interactive multimedia based on Adobe Flash CS6 for room service type materials was developed using the APPED method. The explanation of the research results based on the steps of the APPED method is as follows.

3.1. Analysis

Based on the learning outcomes of Room Service material out of 78 students, there were 59 students with scores below 75, which means less than the KKM (Minimum Completeness Criteria) for practicum courses with an average of 74.6.

Furthermore, the distribution of requirement analysis questionnaires to students who have completed PPR courses, 30 respondent data can be taken which express student opinions regarding the previous room service learning material. The conclusion obtained states that the media used today has not been able to explain the room service flow optimally and the youtube video used as a reference is different from the guidebook so that it confuses students and is dense in writing.

Based on the analysis, its concluded that it is needed such learning media that is more suitable from every aspects such as variety, suitable for both subject and students, better quality for visual and audio depicting room service procedure. Thus, the media that will be developed in the form of interactive multimedia based on adobe flash which includes theory to simulation of room service is equipped with quizzes as a learning evaluation.

3.2. Planning

Planning is in the form of composing the outline of the material which contain the outline from room service scope until clearance procedure. then based on the outline of the content material from the media room service further to the material that will be contained in the quiz. Then based on the description of the material, a storyboard was prepared to describe the script with a total of 16 scenes consisting of 5 conversation scenes. Then an audio script was prepared using 2 voice talents to give examples of conversations in the five scenes and the 6 required sound effects. This documents will be used as a guide in producing interactive multimedia.

3.3. Production

Production is carried out by following the storyboard, GBIM, audio script and a list of quiz questions that have been prepared in the previous stage. At this stage, interactive multimedia elements begin to be produced. Interactive multimedia elements such as text, images, animation, and audio. One example of the production of audio elements such as voice recordings for examples of guest conversations, order takers and waiters.

The results of the production of interactive multimedia learning media based on Adobe Flash CS6 for room service materials are as follows:

The application will display the title and opening pages for a moment before entering the Home page.



Figure 1. Starter Page

On the Home page, there are options starting from instructions, learning objectives, materials, quizzes, and profiles.

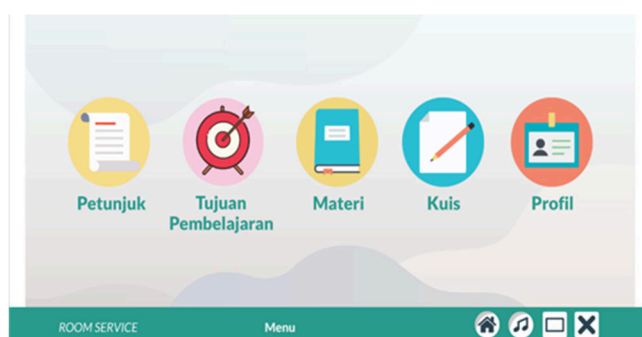


Figure 2. Main Menu Page

Furthermore, the material menu page This page contains room service material which is the main content of this learning media. It consists of two material menus, namely the scope of room service and room service procedures.



Figure 3. Materials Menu Page

Next is the quiz menu. On the initial screen when the quiz menu is opened, instructions for the quiz process will appear as well as filling in the user name. Next there is a "start" button to start the quiz. This page contains questions and answer choices.



Figure 4. Quizz Starter Page

At the end of the quiz display, the total score obtained, correct answers and incorrect answers will be displayed. And students can immediately repeat the question if they want to try again.



Figure 5. Quizz Final Page

3.4. Evaluation

At the evaluation stage, the learning media is validated first by experts to improve the media according to the suggestions so that the quality of the learning media can be better. The results of the expert evaluation are as follows:

Tabel 4. Results of Experts Evaluation

Experts	Total Scores	Average	Percentage	Category
Media Expert	124	4.96	99.2%	Very Good
Subject Expert	95	4.75	95%	Very Good
Linguists	31	3.87	77.5%	Good

Based on the results of experts validation, the product developed is very good from every aspect of each assessment such as in terms of language, media system, and quality of media material. Through this evaluation process, the media was declared eligible to proceed to the next stage. However in order to develop a better media, the experts give suggestions for improvement.

Suggestions for improvement from each expert are as follows:

- a. Media expert: improve the use of color for sample conversation texts and some audio quality needs to be improved in intonation aspect.
- b. Subject experts: more elements that matches the characteristics of students.
- c. Linguists: pay more attention to writing and use more effective sentences.

Learning media continues to be improved according to suggestions during evaluation by experts until it reaches better quality. Such as the use of background text colors has been changed so that the text looks more focused. Materials and text structure also improved in a lot of aspects so that the media can deliver the information better. The quality of the information is one of the important dimensions in e-learning systems [26].

Furthermore, the media is ready to be tested on students in stages. The results of student trials are as follows:

Tabel 5. Students Test Results

Group Tests	Total Scores	Average	Percentage	Category
One to one test	257	84.6	84.6%	Good
Small group test	453	90.6	90.6%	Good
Field group test	1743	87.15	87%	Good

Based on the results of the evaluation with students, it can be concluded that the media developed is of good quality, which indicates that the media has used the language structure, quality of material and media systems that are good for learning and easy to use.

3.4. Dissemination

Dissemination is carried out to students and then a questionnaire is distributed to see student responses to the final developed media. The results of the dissemination stage are as follows:

Tabel 6. Students Dissemination Results

Total Scores	539
Average	26.95
Percentage	89.39%
Category	Sangat Positif

It can be said that the student response to the interactive multimedia learning media room service is "Very Positive". This indicates that students can receive the material well and really like the media developed as the assessment covers in terms of acceptance, attractiveness and ease of use.

Corresponding with [27] the final product is a learning media which can be used to channel message to the recipient, specifically, multimedia interactive. In accordance with [19] previous statement, the developed multimedia interactive is a learning program that contains text, images, graphics, sound, video, animation, simulation in an integrated and synergistic manner with the help of computer devices to achieve certain learning objectives where the user can actively interact with the program.

The quality of the animation produced in this multimedia interactive can be controlled by the user during learning, starting from objects such as the drag and drop in the "Setup stage" section, video control, to voice control and conversation flow, all of which can be moved by the user. In other words, interactive multimedia has options and choices so that learning can be personalized. This helps students to think more and be independent in learning [28] and students had opportunities to improve their digital and soft skills and receive personalized teaching [29].

4. CONCLUSION

The conclusion can be seen from the results of research such as needs analysis, which results in a description of the media developed. Planning, that results in material design documents, storyboards and audio scripts used. Production, that produces media prototypes based on design documents and media elements such as talent voices. Evaluation, in which the media has been tested by linguists, materials and media experts which the media was declared eligible to proceed to the next stage. As well as user trials which yielded results that the media had good quality and were suitable for use for learning. Finally, dissemination resulted in the media being liked and receiving a positive response.

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