

Development of Tennis Teaching Materials With A Flipbook-Based Anchored Instruction Model for Students of Education Sport, Health and Recreation Study Program in IKIP Budi Utomo Malang

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ABSTRACT

The development of the 21st century requires graduates to have 21st century competence. Therefore, in the Partnership of 21st century skills, it is stated that prospective teachers should be equipped by 21st century knowledge and competences. In order to acquire 21st century competence, teacher must change the way of teaching, including the use of textbook. Textbooks that must be used are textbooks that accommodate the increasing competence of the 21st century. Specifically, this research aims to develop a tennis textbook with a flipbook-based Anchored Instruction model for students of Sport, Health and Recreation Study Program at IKIP Budi Utomo Malang. This research used Research and Development (R&D) design with 4D model (Define, Design, Develop, and Disseminate). The selection of this development model is based on: 1) the existence of revisions (evaluations) that were carried out continuously in each correct stage so that it can produce a better teaching material, 2) this model was very simple but the implementation is systematic. Overall, the development of a tennis textbook with a flipbook-based Anchored Instruction model is suitable to be used as a learning medium with an average feasibility score of 91.5% included in the "Very Valid" criteria.

Keywords: Tennis Textbook, Anchored instruction, Flipbook, 21st century.

1. INTRODUCTION

The 21st century competence is needed to compete in the world of work. Therefore, in the Partnership for 21st Century Skills, it is stated that in the learning process students should be equipped with 21st century knowledge and competencies. One of the competencies that can be developed is learning and innovation skills. The strategy used to achieve these competencies is to develop student skills which include problem solving, critical thinking, collaborative, and creative thinking in the use of [1] In the 21st century, the information are developed very rapid, so that the ability to think critically becomes one of the focuses of achievement in the field of education in Indonesia. Students' critical thinking skills can be measured by knowing their ability to analyse, evaluate, compare, synthesize and describe an existing problem or issue [2].

Based on the data, students' critical thinking skills in Indonesia are still very low. This is evidenced by the results of the TIMSS and PISA international studies in 2015 which showed the critical thinking skills of students in Indonesia are ranked 62 out of 70 countries. Cases and questions presented in international studies, both TIMSS and PISA, absolutely require the ability to think critically to solve problems, especially in the Science section.

It shows that the application of appropriate teaching methods has a considerable influence in motivating students to think critically and improve student achievement, but based on the existing learning process in the field, the teaching method still uses less interactive teaching materials. To overcome the above problems with the development of interactive media and the use of innovative learning models. One of the innovative problem-based learning models is anchored instruction.

Anchored instruction is a learning model that focuses on technology as a teaching material in class. [3] in a previous study found that the effectiveness of learning using the Anchored Instruction method using multimedia and video in learning was better. For this reason, technology is needed that is able to bring students to be involved in conditions where students must seek information, assess sources and discuss to solve issues or problems. One of the technologies that can be used in Anchored Instruction is the Flipbook.

2. METHOD

This research used Research and Development (R&D) design. This research aims to produce a new product that is useful in the learning process. The development of Genetic Teaching Materials based on Aururo Animation 3D Maker used the Research and Development (R&D) method with the 4 D model (Define, Design, Develop, and Disseminate) [11]

This research will be carried out at IKIP Budi Utomo Malang and will be held in April-November 2020. The population in this study were all students of the Health and Recreation Physical Education study program at IKIP Budi Utomo Malang who were registered in the even semester of the 2020/2021 academic year who took the Tennis Court course. The author determines the sample randomly (random).

1.1. Research Instruments

1.1.1. Module Validation Sheet

The module validation sheet instrument was in the form of a module validation questionnaire which contains a number of statements about aspects of format, material, language, attractiveness, and there are also comments of criticism, suggestions, and conclusions.

1.1.2. Field Notes

Field notes are one of the instruments used in this development research. Field notes were obtained from the results of observations during the limited trial module. Unique incidents or difficulties experienced by students will be noted because this will be useful for analysing whether there is a need for improvements to parts of the module that are difficult for students to understand.

1.1.3. Student Response Questionnaire

This instrument was used to obtain data regarding student responses or opinions to learning materials using modules. Each student is given the task to fill out a questionnaire by giving a cross mark (X) on the alternative answers provided for each question item posed. The data obtained from student response questionnaires is qualitative data which will later be processed into quantitative data.

1.2. Data Retrieval

Data and data collection methods in this study can be seen in table 1 below:

Table 1. Data retrieval

No	Research and Development Stages	Technique	Assessment	Research Respondent
1	Identify potential and problems	Observation	-	-
2	Teaching material validation	<ul style="list-style-type: none"> - Questionnaire of material expert - Questionnaire of media expert - Questionnaire of language 	<ul style="list-style-type: none"> - Validation sheet of media expert and the assessment rubric - Validation sheet of material expert and the assessment rubric - Validation sheet of language expert and the assessment 	<ul style="list-style-type: none"> - Expert lecturer of teaching media - Expert lecturer of Tennis - Expert lecturer of Indonesian language

		expert	rubric	
3	Small scale trial	- Questionnaire	- Students' questionnaire - Teachers' questionnaire	- 10 students of Education of Sport, Health and Recreation Study Program - 2 lecturer of Tennis subject - 5 peereviewer

The instrument in the form of a questionnaire was given to the validator to give an assessment of the media. The range of scales used in the questionnaire used the Likert scale with the following rating categories: Number (1): not feasible, Number (2): inadequate, Number (3): feasible, and Number (4): very feasible.

While the instrument in the form of a questionnaire for testing was given to students both small group and limited scale field trials with a range of scales. The range of scales used in the questionnaire of trial used the Likert scale with the following rating categories: Number (1): not attractive, Number (2): not very interesting, Number (3): attractive, and Number (4): very interesting.

Existing data collected from respondents through a questionnaire in the form of ordinal data was converted into interval data. This can be done by turning the data into a percentage of the answers to each question. Validity test was done to determine the feasibility of product development. Validity test was conducted by content validator, media validator and field expert validator. Validity of data analysis technique used the following formula:

$$P = \frac{\sum Xi}{\sum Xj} \times 100\%$$

P = Percentage of choice

$\sum Xi$ = Number of score answers

$\sum Xj$ = Number of highest answer scores 1 item

Validity test data that has been calculated was then adjusted to the criteria in table 2.

Table 2. Media eligibility criteria by validators

Range of Percentage (%)	Criteria	Follow-up
99.99 – 100	Very valid	Without revision
75 – 99,99	Valid	Minor revisions needed
50 – 75	Valid Enough	Major revision needed
25 – 50	Less valid	Cannot be used
0 – 25	Invalid	Cannot be used

3. RESULTS AND DISCUSSION

3.1. Results

The research results were obtained from the results of due diligence by experts, namely material experts, media experts and linguists. The analysis was also carried out on the results of the feasibility test on students of the Education of Sport, Health and Recreation Study Program at IKIP Budi Utomo Malang. Based on the results of data analysis, it can be seen the feasibility level of the media.

The results of research on the development of a tennis court textbook with a flipbook-based Anchored Instruction model include the results of validation by 3 experts, namely material experts, media experts and linguists. Apart from being based on the validation of the 3 experts who have been determined, the tennis textbook with the flipbook-based Anchored Instruction model is also analysed based on the results of the initial field trials. The complete data is presented as follows:

3.1.1. The result of Material Expert's Assessment

Validation of material experts has been carried out to lecturers in the Tennis subject. A summary of the

results of the material expert's validation can be seen in table 3.

Table 3.Results of the material expert's validation

No	Scoring Aspect	Score				Amount of	Amount of Expected Score	Percentage
		4	3	2	1	Score Achievement		
1	Material Characteristics	22	0	0	0	90	90	100%
		Total				90	90	100%
CriteriaVery Valid								

The result of assessment of material expert is from material characteristic aspect percentage is 100% with the criteria very valid.

Validation of material experts has been carried out to lecturers in the Tennis subject. A summary of the results of the mediaexpertsvalidation can be seen in table 4.

3.1.2. Result of media experts Assessment

Table 4. The results of the media experts validation

No	Assessment Aspect	Score				Amount of Score	Amount of Score Expected	Percentage
		4	3	2	1	Achieve		
1	Characteristic of teaching media	18	5	0	0	90	100	90,%
		Total				90	100	90%
CriteriaVery Valid								

The results of the material expert's assessment in terms of the characteristics of the learning media percentage of 90% with the criteria "very valid"

court textbook with the flipbook-based Anchored Instruction model that was developed. Implementation of this limited trial using an online questionnaire given to 15 semester VI students. The results of limited trials can be seen in table 5.

3.1.3. Limited trials

This product trial was conducted with the aim of obtaining a clear picture of the quality of the tennis

Table 5. The trial results are limited

No	Assessment Aspect	Score				Amount of Score	Amount of Score	Percentage
		4	3	2	1	Achieved	Expected	
1	Students'	52	25	0	0	290	325	81,5%
		Total				290	325	81,5%
Criteria						Very Good		

The results of the research on a limited scale online by 22 sixth semester students of the Department of Physical Education, Health and Recreation, IKIP Budi Utomo Malang with 21 questions. Overall, the percentage of 81.5% with the category "Very Good".

3.2. Discussion

From the research results described above, it can be argued that the following results are discussed: Tennis textbook with the flipbook-based Anchored Instruction model by the material expert as a whole gets a score of 4 on each component item. This means that the overall assessment of the media aspect has been fulfilled. Based on the research that has been done, the material expert provides an assessment with a mean score of 4.0 and an average percentage of 100% meaning that the media is included in the very valid category. This is also supported that the learning materials contained therein must be in accordance with the curriculum and contain many benefits [4].

The next stage is an assessment by a media expert who gives a score of 2 on each component item. In terms of points, the aspect of the program display is quite good because the pictures are included in full along with the description and there are animations on each slide as well as the addition of material voice actors that can attract the attention of students more. [5] argues that in media development, the characteristics of users must be considered in developing media. Based on the research that has been done, the media expert gives an average percentage of 90%, meaning that the media is included in the very valid category. Furthermore, the authors conducted small scale trial, it was carried out by distributing questionnaires to 22 semester VI students of the Health and Recreation Study Program at IKIP Budi Utomo Malang and obtained a score of 3.58 with a

percentage of 81.5%, which means that the media is in the category. "very good". Based on previous research by researchers on the Development of Teaching Material of Sony Vegas Media Based with Anchored Instruction Models for Tennis Course in IKIP Budi Utomo Malang, it is worth using [6-9]

This is shown by the enthusiasm of students in viewing and carrying out learning activities using videos. Jemore Burner in (Prayitno, 1989: 119) [10] that if in learning students can be given direct experience (through media, demonstrations, field trips, dramatization), then the learning situation will increase the enthusiasm and interest of these students in learning. The Aurora 3D Animation Maker learning model and the Anchored Instruction learning model based on interactive genetics flipbooks are suitable for use in genetics subjects, especially to improve students' critical thinking skills [6-7] The results of other studies show that the application of Aurora media for 3D Maker Animation can improve the cognitive learning outcomes of students in Biology 2016-A, with cognitive learning outcomes with classical completeness 71% to 88%. Based on this data, it can be concluded that the application of Aurora 3D Animation Maker media can improve student cognitive learning outcomes [8-9]

4. CONCLUSION

Based on the validation results of media experts, material experts, and small group trials. Overall, the development of a tennis court textbook with a flipbook-based Anchored Instruction model is suitable for use as a teaching material with an average feasibility score of 91.5% and is included in the "Very Valid" criteria. Based on the conclusions obtained in this study, suggestions can be made that need to combine the use of tennis court textbooks with a

flipbook-based Anchored Instruction model with online learning.

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