



WEBSITE MEDIA RECONSTRUCTION FOR BASKETBALL LEARNING USING *VISUAL STUDIO CODE APPLICATION*

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Abstract

This study aims to find out the process of reconstruction of learning media in the form of a *website* in basketball game materials using the Visual Studio Code application for students of grade X Marketing 1 SMKN 11 Bandung. The method used is the ADDIE development method which consists of five stages, namely *Analyze, Design, Develop, Implement, and Evaluate*. The subject of this study involved three experts, namely material experts, media experts, and practitioners/teachers, as well as 33 students of class X Marketing 1 as students through total sampling techniques. The research instrument consists of a feasibility questionnaire for *experts* as well as a *pretest* and *posttest* for students. The data analysis technique used a percentage test for product feasibility and the Wilcoxon Signed-Rank Test for learning effectiveness through SPSS 25. The results of the feasibility test from the three experts showed an average percentage of 87.11% which was included in the "Very Feasible" category. In addition, *the results of the pretest and posttest* showed an increase in student learning outcomes, with an average *pretest* score of 71.71 and an average *posttest* score of 87.06. These results show that the website learning media that has been developed is effective in increasing students' understanding of basketball game materials.

Keywords: *Media reconstruction, learning website, basketball, Visual Studio Code, ADDIE, learning outcomes*

INTRODUCTION

Physical education provides opportunities for children to learn various activities that foster and develop children's potential, in physical, mental, social, emotional and moral aspects. Based on research conducted by reveals that sports and physical education forms character development such as honesty, fairness, responsibility, peace, confidence, respect, and care for people, very important character traits that are developed through physical education. The game of basketball has become one of the sports that is quite popular in Indonesia, Basketball is a fun, competitive, educational, entertaining and healthy

sport and has many fans of basketball sports coming from all ages from children to adults, both men and women can play it. (Pinton Setya Mustafa, 2020) (M. Akbar Syafruddin, 2022) (Yuliance Adii, 2023)

Based on research conducted by stating that basketball learning needs to be held to develop learning media so that it is not monotonous and does not get bored quickly, in line with the research conducted by stating that the advantages of learning media are based on (Huda, 2022) (D. A. Wulandari, 2023) *Copyright* © is that learning materials and media can be accessed at the time and place we want and learning materials will be increasingly diverse. The development of information technology is currently very rapid, so it affects the development of the world of education, especially in the learning process. Each student has different abilities and ways of thinking to understand a subject matter, students are also required to be active in learning and not only rely on several sources of material to understand a certain subject.

Research related to use *Copyright* © In learning, more and more is being done to explore how this technology supports the learning and teaching process in the classroom. Some research shows that the use of *Copyright* © very useful and more effective teaching and learning activities. For example, research conducted by With the existence of learning media based on (Sari, 2023) *Copyright* ©, the material can be explained easily and displayed on interesting media so that students are more motivated and enthusiastic to participate in learning. Meanwhile, the research revealed by the role of the media is very important in providing information and motivation to students to be interested in what is taught by a teacher, so that the goals of learning are achieved. Teachers as facilitators or provide information about learning resources that can support the learning provided, the learning media used to convey the material that will be provided so that it can be conveyed properly and correctly to students. Thus, physical education teachers in teaching should be more creative in designing and implementing the learning process so that interesting and fun learning is created. (B. Aprial, 2023) (Rohani, 2021)

This is also in line with research conducted by The advantages of media (S. Amin, 2022) *Copyright* © that is, students can develop critical thinking, creativity, communication and collaboration skills. Apart from the benefits, there are several important points that must be possessed by a *Copyright* ©, Based on the results of research conducted by the (Crisye Efendi Tambunan, 2021) *Copyright* © must have a simple and attractive display to pay attention to, have learning materials and videos, and have an evaluation/exam room to assess students' understanding. The most important of a learning medium based on *Copyright* © is *Copyright* © that has been published on the internet, based on research conducted by the (D. Maharani, 2021) *Copyright* © There is no point in building without being visited or known by the public or internet visitors. Because the effectiveness of the site depends on the number of visitors and comments that come in.

Usage *Copyright* © As a learning medium, basketball can be an innovative solution to

overcome the limitations of time, location and facilities at school. As well as the development of technology in today's era must be used properly, this research is expected to have a significant impact on basketball learning, especially in making learning in the classroom effective using media *Copyright* ©. With the presence of *Copyright* © As a learning medium, students can access the material anytime and anywhere, which aims to improve understanding of basketball learning. The main purpose of this research is to find out how media reconstruction (D. A. Wulandari, 2023)*Copyright* © On learning basketball using applications *Visual Studio Code*. Research related to use *Copyright* © In learning, more and more is being done to explore how this technology supports the learning and teaching process in the classroom.

METHODS

In this study using the ADDIE development method, ADDIE stands for *Analyze, Design, Develop, Implement, and Evaluate*. ADDIE is a product development concept. The ADDIE concept is applied to build performance-based learning. Creating products using the ADDIE process remains one of the most effective tools today. Since ADDIE is simply a process that serves as a framework guide for complex situations, it is very appropriate to develop educational products and other learning resources. (Branch, 2009)

Analysis stage, in the analysis stage, the researcher conducts a process or 2 stages of analysis, needs analysis and analysis of user characteristics, needs that are needed based on the results of discussions with teachers at the school, especially the sports teacher. The goal is to create learning media that is appropriate and needed based on the desires of the results of discussions with teachers so as to make learning media that is appropriate and suitable to be applied in the school and User Characteristics Analysis aims to understand students' needs, interests, learning habits, and technological skills in order to design the right learning media. Design Stage In the Design or Design stage, it is an activity to design website products (*prototypes*) that are made according to the needs of the school and based on the results of discussions with teachers at the school. At this stage, the researcher begins to develop website-based learning media in accordance with the design that has been compiled and at this stage requires validation from experts such as media experts, *website* experts and practitioners (teachers). At this stage of implementation, the researcher conducted a cognitive test or knowledge test about basketball learning using one group pretest and posttest on the sample used, namely grade 10 Marketing 1 from SMKN 11 Bandung with a total of 33 people. The last stage, namely the evaluation stage, is the final part of the ADDIE development model which plays an important role in assessing the effectiveness, feasibility, and success of the learning media that has been developed. Evaluation is carried out thoroughly on all previous stages, starting from *Analyze, Design, Development, to Implementation*, evaluation after the media is applied.

A data collection instrument is a tool used to collect data sourced from respondents. One of the data collection instruments is a questionnaire for experts using a validity test while for students using a cognitive test questionnaire. In this study, the population is students from SMKN 11 Bandung which is 33 people and 3 experts in their fields such as material experts, experts (*V. H. Pranatawijaya, 2019*) Copyright © and practitioners/teachers. The sampling technique used in this study is Total Sampling or saturated sample, which is a data collection technique through interviews, surveys and the distribution of questionnaires to respondents. The number of samples is equal to the number of population, namely 33 students and 3 experts in their fields. The data analysis technique carried out was a presentation test. The analysis in this study is divided into feasibility and effectiveness analysis. Then the prerequisite test, the hypothesis test and the Wilcoxon Signed-Rank Test Ranks test. (*Maksum, 2012*)

RESEARCH RESULTS

From the 3 Experts/Experts, they provide several assessments so that they will be calculated as a whole, then it will be averaged, after the average score appears, the author can conclude the final result whether this website-based learning media is feasible or not.

Table 1. Expert Validation Results

Expert	Maximum Score	Score given	%
Material Expert	15	15	100%
Website Expert	30	22	73,33%
Practitioner	25	22	88%
Average Number of Results from 3 Experts			87,11

Table 2. Expert Validation Qualifications

Yes	Table of Contents	Qualifications	Remarks
1	81%-100%	Strongly agree	Highly Worth It
2	61%-80%	Agree	Worthy
3	41%-60%	Enough	Less Worthy
4	21%-40%	Disagree	Not Eligible
5	0-20%	Strongly disagree	Very Unworthy

Based on the 3 results, the experts have a presentation result of 87.11% and based on table 2. The Expert Validation Qualification is the *website* that the researcher created in the qualification category "Very Feasible". If the material expert looks at the content of the material, the suitability of the material with the independent curriculum based on phase E and the ease of use by students as well as the usefulness of the *website* for students in learning basketball.

1. Hypothesis Testing Results

A. Data Description

Descriptive data is a description of the data used in a research. In this data description test, the researcher tries to find out the description or condition of the respondents who are sampled in this study. From the collection of pretest and posttest data with a sample of 33 students in grade 10 Marketing 1 SMKN 11 Bandung, the test was carried out using the help of the IBM SPSS Statistics version 25 program.

Table 3. SPSS Calculation Results for Descriptive Data Description

		Statistic	Std. Error	
Cognitive Test Loans	Red	71.71	2.902	
	95% Confidence Interval for Mean	Lower Bound	65.80	
		Upper Bound	77.63	
	5% Trimmed Red	72.65		
	Median	73.33		
	Variance	277.894		
	Std. Deviation	16.670		
	Minimum	27		
	Maximum	100		
	Range	73		
	Interquartile Range	17	.409	
	Skewness	-.907	.798	
	Kurtosis	.939	1.993	
Post-test cognitive tests	Red	87.06		
	95% Confidence Interval for Mean	Lower Bound	83.00	
		Upper Bound	91.12	
	5% Trimmed Red	88.08		
	Median	93.33		
	Variance	131.081		
	Std. Deviation	11.449		
	Minimum	53		
	Maximum	100		
	Range	47		
	Interquartile Range	7		
	Skewness	-1.776	.409	
	Kurtosis	2.578	.798	

After learning, there is an increase in student learning outcomes. The average score increased from 71.71 (pretest) to 87.06 (posttest). The lowest also increased from 27 to 53. In addition, the

distribution of scores becomes more even because the standard deviation and the range of posttest scores are smaller. This data shows that learning has succeeded in improving student understanding.

2. Research Prerequisite Test

A. Normality Test

Results of the normality test using SPSS Before conducting hypothesis testing, a normality test is first carried out to find out whether the data from the pretest and posttest values are normally distributed or not. The test used, namely the Shapiro-Wilk test, was used because the number of samples was less than 50 and the total sample was only 33 people.

Table 4. SPSS Calculation Results for Normality Test

	Tests of Normality					
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Cognitive Test Loans	.175	33	.012	.929	33	.034
Post-test cognitive tests	.284	33	.000	.732	33	.000

a. Lilliefors Significance Correction

Based on the results of the Shapiro-Wilk test, the significance value of the pretest was 0.034 and the posttest was 0.000, both of which < 0.05 . So it can be concluded that the data is not normally distributed. Therefore, hypothesis testing uses the non-parametric Wilcoxon Signed-Rank Test.

B. Homogeneity Test

**Table 5. SPSS Calculation Results for Homogeneity Test
Test of Homogeneity of Variances**

		Living Statistic	Df1	Qf2	Sig.
Cognitive Test Loans	Based on Mean	.651	4	26	.631
	Based on Median	.323	4	26	.860
	Based on Median and with adjusted df	.323	4	19.775	.859
	Based on trimmed mean	.595	4	26	.670

Although this study used a *One Group Pretest-Posttest design* with only one group, the variance homogeneity test was still performed to ensure the stability of the variance of the pretest data among the subcategories within the group. Based on the results of the Levene test, the significance values obtained were 0.631 (based on *the mean*), 0.860 (based on *the median*), 0.859 (*median* with free degree adjustment), and 0.670 (based on *trimmed mean*). Since the total significance value is greater than 0.05, it can be concluded that the data have a homogeneous variance and there is no significant difference in variance between subcategories within the group. A

Table 6. SPSS ANOVA Calculation Results

ANOVA					
Cognitive Test Loans	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	3227.124	6	537.854	2.468	.050
Within Groups	5665.480	26	217.903		
Total	8892.604	32			

The ANOVA results show that the value of F is 2.468 with a significance value of 0.050. Although the study used only one group, this analysis was used to find out if there was a significant difference in pretest results based on specific subcategories within the group. The significance value that is right at the threshold (0.050) indicates an indication of differences in pretest results between subcategories in the group, although the effect is still relatively small. Further analysis can be done to identify the factors that influence the variation.

This study only involved one group that was tested before and after treatment (*pretest* and *posttest*). The test results showed that *the pretest* data had an even or uniform distribution of values. This means that the data is stable enough to analyze. Although ANOVA analysis is usually used to compare different groups, in this study ANOVA was only used as additional information, not as the main analysis.

3. Hypothesis Test

A. Uji Wilcoxon Signed-Rank Test'

After the normality test is carried out and it is known that the data is not distributed normally, the hypothesis test is carried out using the Wilcoxon Signed-Rank Test, this test is used to find out if there is a significant difference between the pretest and posttest scores.

Table 7. SPSS Calculation Results for Homogeneity Test

Ranks				
		N	Mean Rank	Sum of Ranks
Cognitive Test	Negative Ranks	3a	6.50	19.50
Loans				

Cognitive Test Loans	Positive Ranks	27b	16.50	445.50
	Ties	3c		
	Total	33		

-
- a. Post-test cognitive test < Cognitive test loan
 - b. Post-test cognitive tests > Cognitive test loans
 - c. Post-test cognitive tests = Cognitive test loans

Test Statistics^a

Post-test cognitive tests-Pretest cognitive tests	
Z	-4.401b
Asymp. Sig. (2-tailed)	.000

-
- a. Wilcoxon Signed Ranks Test
 - b. Based on negative ranks.

From the results of the Wilcoxon test, it was obtained that out of 33 students, there were 27 students with posttest scores higher than *the pretest (positive ranks)*, 3 students experienced a decrease in grades (*negative ranks*) and 3 students did not experience a change in grades (*ties*), the Z value obtained was -4.401 with a significance value (Asymp. Sig. 2-tailed) of 0.000. Because the significance value is less than 0.05, it indicates that there is a significant difference between *the pretest* and *posttest* scores. This means that website-based learning media significantly increases students' knowledge of basketball materials.

Based on the results of data analysis using the Wilcoxon Signed-Rank Test, it was concluded that there was a significant difference between learning outcomes before and after using basketball learning website media. Thus, it can be concluded that the use of website-based learning media has a significant effect on increasing students' knowledge of basketball material.

Some of the images from the website that the researcher created.

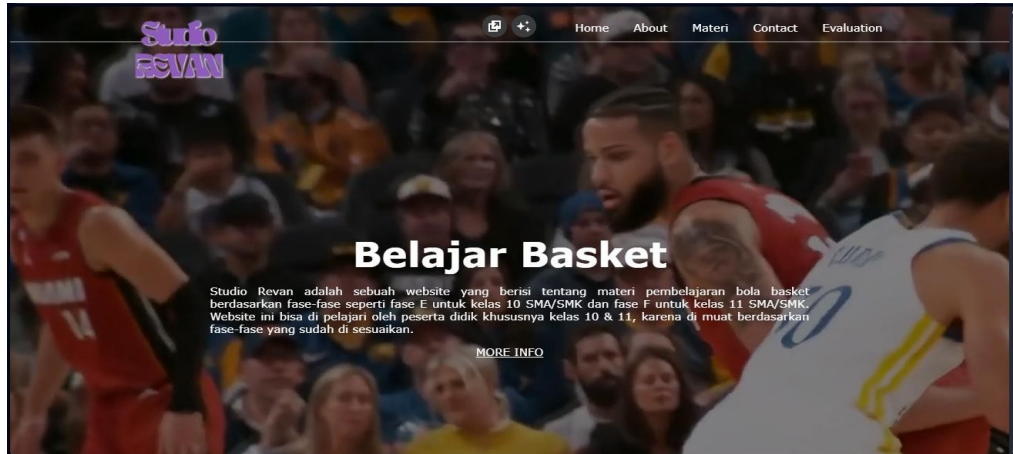


Figure 1. Results from Website Main Display

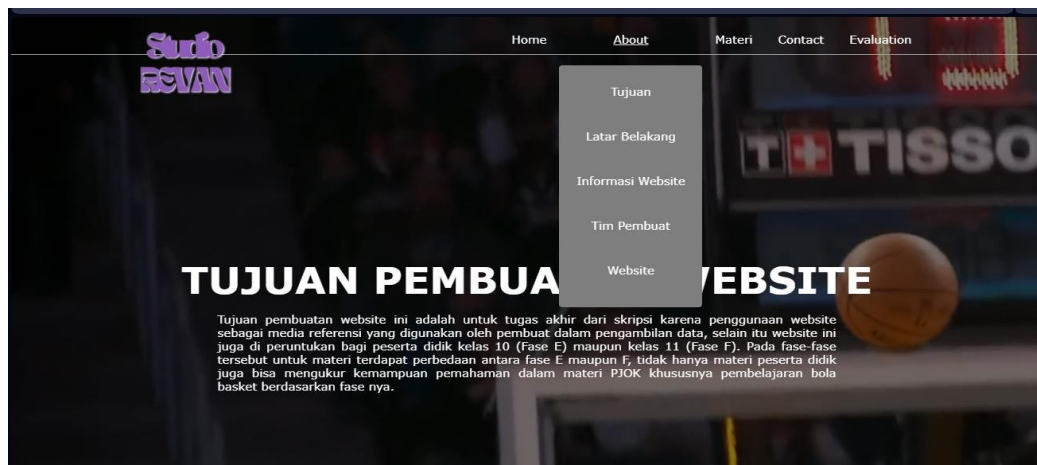


Figure 2. Results of the About View on the Website

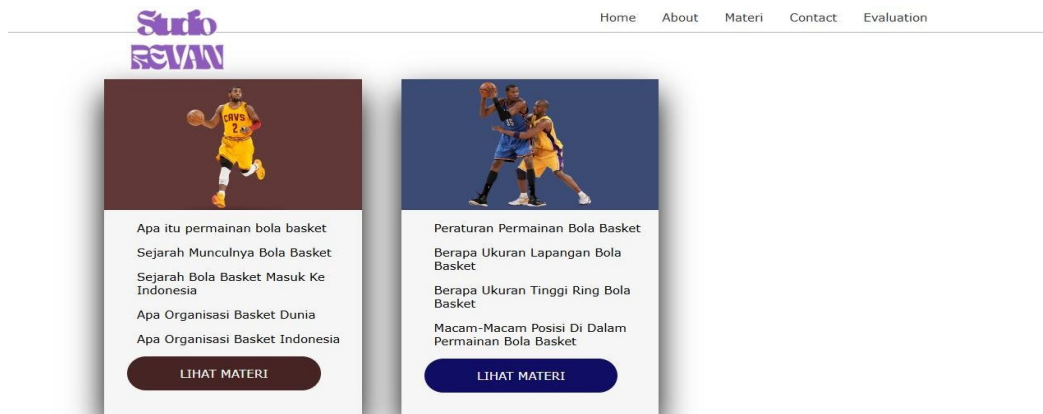


Figure 3. Game homepage and rules



Figure 4. Phase E and Phase F pages

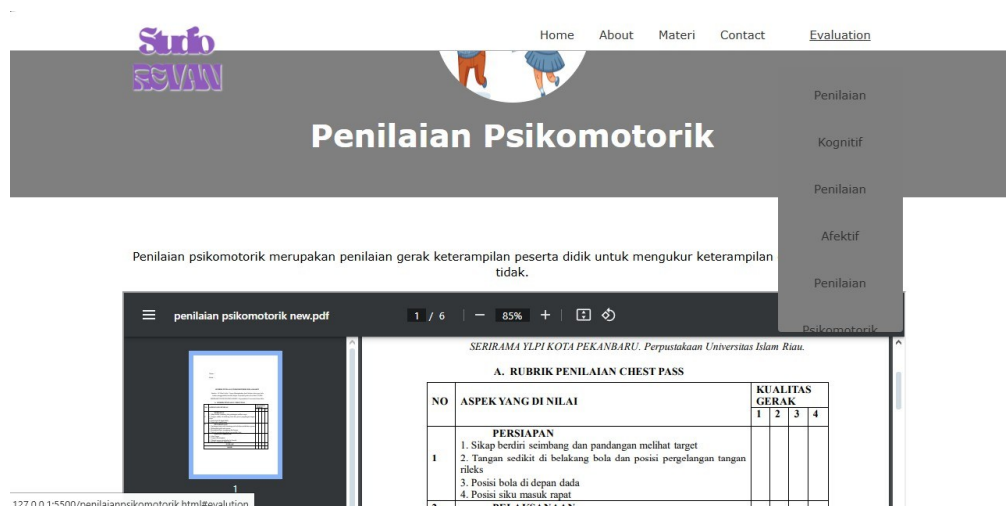


Figure 5. Website Evaluation Page

DISCUSSION

Based on the results of the study, it is known that there is a significant increase in student learning outcomes after using website-based learning media in basketball materials. This can be seen from the difference in pretest and posttest scores analyzed through the Wilcoxon Signed-Rank Test, with a significance value of 0.000 which is smaller than 0.05. This shows that the use of such media has a positive impact on student understanding. In line with the theory of constructivism in learning, it is to help improve student understanding. Learning will take place more effectively if students are in direct contact with the object being studied, which is in the surrounding environment. In addition, the use of today's technology-based equipment with and without networks and diverse learning resources can increase the effectiveness and efficiency in understanding students (Mayer, 2005).

This increase reflects that website-based learning media can be an effective means of helping students understand the concept of basketball. This is in line with Mayer's theory which explains that the use of digital media that combines visual and audio elements can help students understand the material better and improve their memory (Mayer, 2005). In addition, modern learning theories such as those put forward by Bransford, Brown, and Cocking, as well as Schunk, emphasize the importance of active, interactive, and contextual learning (Bransford, (2000)) Digital media such as websites provide

a space for students to learn independently and interact directly with the material, according to their current learning style (Schunk, 2012).

Ease of access and flexibility in using the website is also an advantage. As conveyed by (D. A. Wulandari, 2023) web-based media allows students to learn anytime and anywhere. This is very compatible with the characteristics of the current generation who are referred to as digital natives of the generation who are used to using technology in their daily lives (Prensky, 2001). With an attractive design and well-organized materials, this media helps increase students' motivation to learn and concentration in the classroom.

This opinion is strengthened by (S. Nurfadhillah, 2021) who states that learning media play an important role in clarifying information, attracting attention, and encouraging student involvement in the learning process. In line with that (Huda, 2022), it also emphasizes the need for innovation in learning media in basketball so that students do not get bored quickly. Therefore, the development of website-based media is one of the solutions that teachers can use in conveying material in a more interesting, fun, and easy-to-understand way for students.

CONCLUSION

Based on the results of research and discussions that have been carried out regarding the reconstruction of *website media* for basketball learning using the Visual Studio Code application, it can be concluded that several things can be concluded, namely that the website media developed has proven to be effective and suitable for use as a basketball learning media. This was obtained from the results of validation of material experts, *website experts*, and teacher practitioners, which showed that *the website* met the eligibility criteria both from material experts who looked at the content of the material, the suitability of the material with the independent curriculum based on phase E and provided a feasibility validation score of 100% "Very Feasible", *website experts* who looked at the appearance and how *the website* worked as well as providing a validation score of "Feasible" and practitioners/teachers who see the ease of use by students and the usefulness of the *website* for students in learning and provide a feasibility validation score of 88% "Very Feasible". Website media has succeeded in improving students' understanding of basketball material, especially in basic game techniques. This can be seen from the results of *the students' pretest* and *posttest* which showed an increase in scores after using *website media* as a means of learning. For PJOK teachers, it is recommended to start using technology-based media such as *websites* in the learning process, so that the material can be accessed by students anytime and anywhere. This can also be a solution when practical learning cannot be carried out in the field. For learning media developers, it is important to continue to update content regularly, especially in terms of visuals, videos, and interactivity so that students do not feel bored when learning through digital media. For students, it is hoped that they can be more active in utilizing digital media in

supporting learning, especially in understanding materials that require visualization such as basic basketball techniques and this research is still limited to one school and several respondents, it is hoped that further research can be carried out on a wider scale, so that the results can be generalized to various levels and other educational conditions.

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