The Development Of Contextual-Based Audio Visual Learning Media On Taxation Materials

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Article Info

Abstract

Penelitian bertujuan untuk mengembangkan media pembelajaran dalam bentuk audio visual dengan berbasis kontekstual pada materi perpajakan menggunakan model ADDIE dengan lima tahap. Tahap penelitian tersebut yaitu 1)Tahap analisis yaitu terdapat penurunan hasil belajar, pendekatan pembelajaran kurang maksimal, dan media pembelajaran yang tidak variatif. 2) Tahap perancangan produk, validasi ahli, dan instrumen tes yang dinyatakan valid dan reliabel. 3) Tahap pengembangan produk, dan penilaian kelayakan oleh Ahli Media I (71% dan 88%); Ahli Media II (80% dan 91%); Ahli Materi I 92%; Ahli Materi II 90%. 4) Tahap implementasi produk pada kelas eksperimen yang diberi pre test dan post test. 5) Tahap evaluasi yaitu uji pre test dan post test pada kelas kontrol dan eksperimen. Menggunakan uji n-gain dan effect size memperoleh hasil bahwa terdapat peningkatan hasil belajar yang tinggi pada kelas eksperimen dengan skor rata-rata sebesar 0,73. Sedangkan peningkatan hasil belajar pada kelas kontrol memperoleh skor rata-rata 0.31. Artinya terdapat perbedaan peningkatan hasil belajar antara kelas yang menggunakan media pembelajar dengan tanpa media. Selain itu, media pembelajaran yang dikembangkan efektif dalam mendukung peningkatan hasil pembelajaran siswa pada materi perpajakan dengan nilai efektivitas sebesar 1.56.

Abstrak

The research aims to develop learning media in the form of audio-visual based contextual on taxation material using the ADDIE model with five stages. The research stages are 1) The analysis stage is that there is a decrease in learning outcomes, the learning approach is less than optimal, and the learning media is not varied. 2) The product design stage, expert validation, and test instruments are declared valid and reliable. 3) Product development stage, and feasibility assessment by Media Expert I (71% and 88%); Media Expert II (80% and 91%); Material Expert I 92%; Material Expert II 90%. 4) The product implementation stage in the experimental class was given a pre-test and post-test. 5) The evaluation stage is the pre-test and post-test in the control and experimental classes. Using the n-gain test and effect size, the results showed a high increase in learning outcomes in the experimental class with an average score of 0.73. At the same time, the increase in learning outcomes in the control class obtained an average score of 0.31. This means that there is a difference in improving learning outcomes between classes that use learning media and those without media. In addition, the learning media developed is effective in supporting the improvement of student learning outcomes on taxation material with an effective value of 1.56.
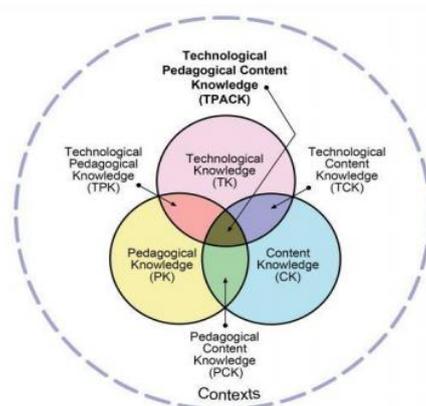
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INTRODUCTION

In early 2020, the education sector in Indonesia underwent a change due to the spread of the coronavirus which caused the learning system to be shifted online. Then as the number of virus spreads decreases, a Limited Face-to-face Learning or Blended Learning system is applied. The online and limited learning system resulted in a decrease in student learning outcomes, this was due to a culture shock. A limited system requires many parties to adapt to technology. Proficiency in using technology helps teachers to achieve learning goals, even in conditions full of limitations. Most of the obstacles experienced by educators during this condition are arranging creative and innovative learning activities so that students can achieve the target knowledge, skills, and attitudes that are built in the learning process (Kariyani, 2021). The technology used can be a tool or learning media in the delivery of learning materials. There are various kinds of learning media that can be used, one of which is video learning.

Learning videos provided with interesting audiovisuals will increase students' focus on understanding the learning material. In general, people will remember 10% of what they read, 20% of what they heard, 30% of what they saw, and 50% of what they heard and saw. Therefore, learning video content whose visualization can be seen and the audio can be heard is easy to remember. Most students are more interested in using video in learning and are able to increase student motivation and learning outcomes (Cruse, 2006). Learning videos can be used in any learning material. Economics learning is a form of effort in understanding complex issues. One of these materials is taxation which is closely related to the conditions of daily life. Providing an understanding of the relationship between the material and real-life examples, it can be done through a contextual approach. The combination of the use of learning media with a contextual approach can help students understand the relationship between the material and the real world through interesting visualizations. Students' understanding is obtained from learning outcomes, therefore this study also examines the effect of learning media developed on learning outcomes.

Video-based collaborative learning provides opportunities for students to understand material concepts in real-world situations (Yin et al., 2020). Therefore, the development of learning media must use appropriate development models and theories such as the ADDIE development model and the TPACK schema theory. The ADDIE model stands for Analysis, Design, Development or Production, Implementation, and Evaluations which was developed by Dick and Carry (1996). This model can be used for various forms of product development such as models, learning strategies, learning methods, media, and teaching materials (Sari, 2017). Meanwhile, the TPACK (Technological Pedagogical Content Knowledge) scheme was first developed by Schulman (1986) which is known as the Pedagogical Content Knowledge (PCK) model. Then Koehler and Mishra (2007) refined and proposed changing the name from TPCK to TPACK, this was done to make pronunciation easier (Wijoyo et al., 2020). This scheme is applied in the development of learning media that combines technology, pedagogy, content, and knowledge. The TPACK scheme is described as follows:


Source: Koehler et al., (2009)

Image 1. The TPACK scheme

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a) Content Knowledge (CK) is in-depth knowledge that must be possessed by an educator regarding content or material to be studied and taught to students (Koehler et al., 2009)
b) Pedagogical Knowledge (PK) is the knowledge of a teacher in managing the learning process, such as teaching methods, classroom management, student assessment or evaluation, development, and learning planning (Schmidt et al., 2009).
c) Pedagogical Content Knowledge (PCK) is a combination of content knowledge and pedagogical knowledge. This knowledge must be mastered by an educator to present the material to be taught through pedagogical abilities or knowledge, it is to achieve learning objectives through the development of the learning process (Santos & Castro, 2021).
d) Technological Knowledge (TK) is in-depth knowledge that an educator must master about standard technologies, such as books, chalk, and blackboards, as well as more advanced technologies, such as the internet and digital video (Koehler & Mishra, 2006).
e) Technological Content Knowledge (TCK) is an important knowledge that must be possessed by educators to convey learning materials using technology. Teachers are required to be able to determine the specifications or types of technology that are appropriate to the learning material (Koehler et al., 2009)
f) Technological Pedagogical Knowledge (TPK) refers to knowledge about how technology can be used in teaching activities and knowing that the use of technology can change the way teachers teach (Santos & Castro, 2021)
g) Technological Pedagogical Content Knowledge (TPACK) is knowledge that refers to in-depth knowledge that must be mastered by teachers to integrate technology into teaching various kinds of learning materials (Schmidt et al., 2009)

METHOD

This research belongs to the type of research and development known as Research and Development (R&D) and applies the ADDIE development model. The development stage with this model is described in the following scheme:
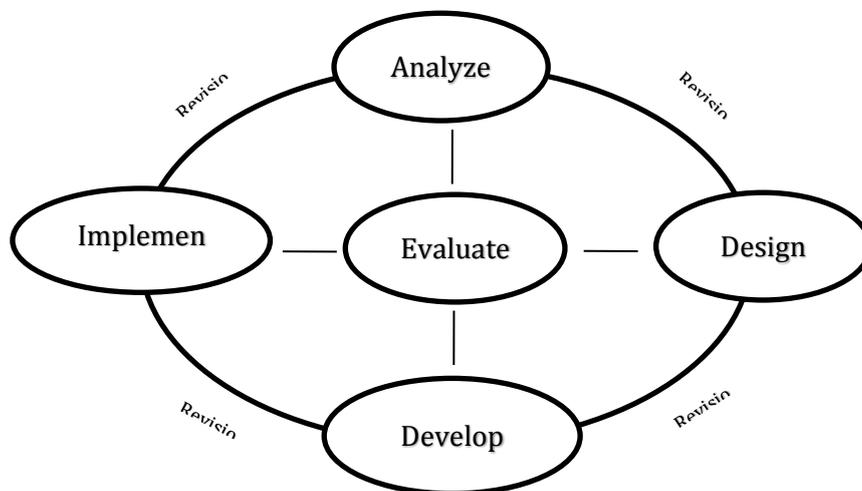
Source: modified from Dick and Carry (1996) in Branch (2009)

Figure 1. ADDIE model development stage

The stages of the ADDIE development model include five stages which are detailed as follows:
a) Analysis stage carried out several activities, such as problem analysis and needs analysis. Analyzing the problem aims to find out irrelevant things that occur in learning. Meanwhile, analyzing needs is needed to determine what is needed to overcome the problems experienced.
b) The Design Phase includes activities to design the product to be developed. The design of this product is the initial stage in development which begins with compiling a concept or storyboard that is prepared in detail and thoroughly.

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ISSN
2302-2663 (online)
DOI: doi.org/10.21009/JPEB.007.2.3

c) Development stage, namely realizing the concept or storyboard that has been clearly and in detail in the previous stage, namely the design stage. In addition, at this stage validation activities are needed to test the feasibility of the product before testing or implementing the product. The product validation is tested based on test instruments and is carried out by experts relevant to product development.

d) The implementation stage is the product trial stage that has been designed and validated. After the product is implemented, feedback on the product developed will be obtained.

e) Evaluation stage is carried out after getting feedback or responses from the product implementation stage.

In addition, this research is an experimental research that uses experimental research methods in the form of quasi-experiments. In a quasi-experiment, the control is only carried out on one variable, namely the variable that is considered the most dominant (Sukmadinata, 2013). Where in this study the most dominant variable is the independent variable, namely contextual-based audio-visual learning media. The experimental design used was a nonequivalent control group design, as shown in the following table:

Table 1. Nonequivalent Control Group Research Design

Group	Pre test	Treatment	Post test
Control	O_1	-	O_2
Experimen	O_3	X	O_4

Source: Sumber: Sugiyono in Yulaekha et al. (2017)

There are several tests before the product is implemented, namely the product validation test, test item validity test, test item reliability test, level of difficulty, and distinguishing power. The test is carried out based on the following formulas:

a) Product Validation

A Validation test aims to measure or assess the feasibility of the product being developed. The feasibility of this product is assessed by media experts and material experts by considering various aspects such as aspects of content feasibility, presentation, and contextual assessment. This measurement uses a Likert scale and is packaged in the form of a questionnaire and is declared feasible if the results of the validation test reach a percentage score of 61% -80%, and > 80% are declared very feasible. This calculation uses the following test:

$$Score\ percentage = \frac{total\ scoring\ score}{maximum\ score} \times 100\%$$

b) Validity Test

The validity test for multiple choice questions uses biserial point correlation because the scores on each item are 1 and 0. Each item with a correct answer is worth 1 score, while an item with an incorrect answer is worth 0 scores. Items are said to be valid if $r_{pbi} > r_{tabel}$ with a significance level of 5%, and items are said to be invalid if $r_{pbi} < r_{tabel}$. According to Jesyca R.T. et al., (2003) the formula for multiple-choice item validity test using biserial point correlation is as follows:

$$r_{pbi} = \frac{M_p - M_t}{SD_t} \sqrt{\frac{p}{q}}$$

M_p = The average score for the correct items
M_t = The average score of the total score
SD_t = Standard deviation of the total score
p = the proportion of students who answered correctly
q = the proportion of students who answered incorrectly

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c) Reliability Test

A reliable instrument is an instrument whose measurement results can be trusted. One of the criteria for a reliable instrument is if the instrument is used repeatedly, the measurement results are fixed (Rusydi & Fadhli, 2018). The reliability test of the items used is Kuder Richardson (KR) 21, this is because the test preparation is in the form of multiple choice with one correct answer worth one score. According to Fraenkel, Wallen, & Hyun in Yusup (2018) the instrument can be said to be reliable if the KR reliability coefficient value exceeds 0.70 (ri > 0.70). The test is calculated based on the following formula:

$$r_i = \frac{k}{(k-1)}\left\{\frac{s_t{}^2 - \sum p_i q_i}{s_t{}^2}\right\}$$

k = Total items
p_i = The proportion of the number of subjects who answered on item 1
q_i = 1-p_i
$s_t{}^2$ = Varians total

d) Level of difficulty

Analysis of the level of difficulty aims to determine the level of difficulty of each item proposed. To calculate the difficulty level of the items, the following calculation formula is used:

$$P = \frac{B}{J_x}$$

P = Difficulty
B = The number of students who answered the question correctly
J_x = The total number of students taking the test

e) Distinguishing Power

The discriminatory ability test is a way to assess the ability of a question to distinguish between students who have high thinking skills and students who have low abilities. To calculate the power difference can be done through the following formula:

$$\frac{B_A}{J_A} - \frac{B_B}{J_B}$$

B_A = A lot of the top group participants answered correctly
B_B = A lot of the lower group participants answered correctly
J_A = Amount of participants in the upper group
J_B = Amount of lower group participants

The hypothesis in this study is the effectiveness of using contextual-based audio-visual learning media in supporting the improvement of learning outcomes on taxation materials. The effectiveness measurement is seen from the n-gain test and effect size. The test is carried out based on the following formula:

a) N-Gain Test

This test was conducted to measure the difference between classes that used the use of instructional media and those that did not, in terms of the increase in the difference between the results of the pretest and posttest. According to Richard R. Hake (1999) the calculation of n-gain is :

$$N\ Gain = \frac{Sf - Si}{maximal\ score - Si}$$

Sf = Average Posttest Score
Si = Average Pre test Score
maximal score = 100

b) Effect Size Test

To test this level of effectiveness, calculations were carried out using Cohen's 1998 formula as detailed by Hake (2002) as follows:

$$d = \frac{m_A - m_B}{\left[(sd_A{}^2 + sd_B{}^2)/2\right]^{\frac{1}{2}}}$$

m_A = the average value of the experimental class gain
m_B = the average value of the control class gain
sd_A = standard deviation of the experimental class
sd_B = standard deviation of the control class

RESULTS AND DISCUSSION

The results of this study were obtained based on the stages of development that had been carried out in stages. The detailed results are:

a) Analysis

Based on the results of observations and interviews, it is known that the learning outcomes of 11th-grade social studies students are low, which is below the KKM, it can be seen that most students take repetition classes at the beginning of the even semester because their grades or learning outcomes have not been completed or have not reached the KKM, so they have not been able to follow the next basic competence. During blended learning or offline learning, educators simply use a contextual approach. However, this has not shown that most students understand the relationship between the material being studied with everyday life, this is because the provision of real examples of the material has not been fully given widely. It is known that one of the learning materials in grade 11 in the even semester that attracts attention because it can be realized in its context with everyday life is taxation. However, the material is considered too complex and difficult because it involves calculating numbers. The lesson plans that he has prepared are quite effective in teaching and learning activities but still need improvement. In addition, it shows that the use of learning media is less than optimal, one of which is the use of learning videos. This is because educators are less creative and innovative in the use of learning media or have a low level of ability to use technology. Therefore, it is necessary to develop contextual-based audio-visual learning media on taxation materials to support the improvement of student learning outcomes.

b) Design

At this stage, what is done is the preparation of a storyline that aims as a reference for developing products, preparing test instruments in the form of multiple choices, and compiling validation sheets by media experts and material experts based on predetermined assessment aspects.

c) Development

At this stage, it contains the results of the validation or product feasibility tests assessed by media experts and material experts, as well as the results of testing the test instruments.

    i.   Media Expert Validation Test

Table 2. The Results of Media Expert Validation Test

No.	Expert	Score I	Category	Score II	Category
1	Media Expert 1	71%	Proper to use	88%	Perfectly decent
2	Media Expert 2	80%	Proper to use	91%	Perfectly decent

The assessment is based on criteria from the following aspects:

Table 3. Media Aspects Assessment Criteria

No.	Aspect	Indicator
1.	Presentation Eligibility	The suitability of the title with the material
		Suitability for image quality
		Interesting image compatibility with the material
		The suitability of the language used so that it is easy to understand
		Music compatibility in video
		Compatibility with standard language according to PUEBI
		Compliance with color design
		The appropriate size of the text on the video
		The suitability of communicative language in the text
		Appropriate sound quality in video
2.	Content Eligibility	The suitability of the flexibility of the use of video
		Video user target suitability
		Compatibility with the limitations of study space and time
		Compatibility with self-study function
		The suitability of the video with the material
		Suitability for enthusiastic student learning enthusiasm
		The suitability of the duration of the video with the level of concentration of students
		Convenience and compatibility in the delivery of video messages
		The suitability of the video duration with the boredom level of students
		Appropriate use of properties in the video

Source: Sumber: BSNP in Mufidah et al. (2020)

ii. Material Expert Validation Test

Table 4. The Results of Material Expert Validation Test

No.	Expert	Score	Category
1	Material Expert 1	92%	Perfectly decent
2	Material Expert 2	90%	Perfectly decent

The assessment is based on criteria from the following aspects:

Table 5. The Results of Material Expert Validation Test

No.	Aspect	Indicator
1.	Content eligibility	The suitability of the material with the syllabus and KD
		Material accuracy
		Latest material
		Encourage desire
2.	Presentation eligibility	Presentation technique
		Motivating
		Learning Presentation
3.	Contextual assessment	Reflecting the contextual approach
		Contextual Component

Source: Sumber: BSNP in Mufidah et al. (2020)

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ISSN
2302-2663 (online)
DOI: doi.org/10.21009/JPEB.007.2.3

iii. Item Validity Test

Table 6. Instrument Validity Test Results

No.	R count	R table	Category
1	0.403	0.374	Valid
2	0.404	0.374	Valid
3	0.457	0.374	Valid
4	0.413	0.374	Valid
5	0.643	0.374	Valid
6	0.375	0.374	Valid
7	0.512	0.374	Valid
8	0.382	0.374	Valid
9	0.427	0.374	Valid
10	0.444	0.374	Valid
11	0.061	0.374	Invalid
12	0.453	0.374	Valid
14	0.492	0.374	Valid
15	0.515	0.374	Valid
16	0.494	0.374	Valid
17	0.224	0.374	Invalid
18	0.444	0.374	Valid
19	0.132	0.374	Invalid
20	0.114	0.374	Invalid
21	0.233	0.374	Invalid
22	0.399	0.374	Valid
23	0.512	0.374	Valid
24	0.411	0.374	Valid
25	0.443	0.374	Valid

iv. Reliability Test

The reliability test using the KR-20 formula on 20 valid questions got the result of 0.810. The results are declared reliable if $r_i > 0,70$. Therefore, based on the results of the reliability test, it is stated that this test instrument can be trusted or reliable.

v. Test the difficulty of the items

Based on the results of the difficulty level test, it shows that the items are classified as easy to moderate. Items are said to be easy if they get test results of 0.71-1.00. And the items are said to be moderate if the test results are 0.31-0.70. Of the 20 valid items, there are 5 questions classified as easy and 15 questions classified as moderate.

vi. Test the power of different items

Based on the results of the discriminatory power test, shows that the discriminatory power of the items is quite to good. Of the 20 valid items, there are 2 items that are included in the class of distinguishing power with sufficient level. And there are 18 items that are included in the class of distinguishing power with a good level.

d) Implementation

The product developed was implemented in the taxation learning process for three meetings, namely two meetings for material discussion and one meeting for the evaluation stage in the form of daily exams. At the first meeting, the experimental class and the control class were given a pre-test to measure the level of knowledge before starting the lesson. At the second meeting, the experimental class was given a review regarding the learning videos provided. And at the third meeting, material reviews and formative tests or post tests were given.

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e) Evaluation

i. **N-Gain Test**

Score	Categori	Experimental	Control
		Frequency	Frequency
g> 0.70	High increase	28	6
0.70<g<0.30	moderate increase	12	15
g<0.30	low increase	0	13
g=0	No to increase	0	0
g<0.00	decrease	0	6

Based on the table above, it is known that in the experimental class there were 28 students who experienced an increase in high learning outcomes as seen from the difference between the results of the pre-test and post-test. In addition, there were 12 students who experienced moderate improvement. In this class, all students stated that their learning outcomes had increased moderate to high. That is, the use of learning media in this class is able to improve learning outcomes.

While in the control class there were 6 students who showed a high increase in learning outcomes, and 15 students with moderate increases in learning outcomes. In addition, this class shows that there are 13 students included in the moderate improvement category. Although there was an increase, the control class also showed that there were 6 students who experienced a decrease in learning outcomes. That is, even though it does not use learning media, it still shows an increase in learning outcomes even though it is not as high as classes that use learning media.

ii. **Effect Size Test**

Based on the results of the manual calculation test through Ms. Excel, it was found that the effect size test results were 1.56. The value is > 0.80 which is included in the category of great effectiveness. That is, the use of learning media developed is highly effective or large in improving learning outcomes of cognitive aspects of taxation learning.

CONCLUSIONS AND SUGGESTION

The Development of contextual-based audio-visual learning media on taxation material has been carried out properly according to the ADDIE development model stage, starting from the analysis, design, development, implementation, and evaluation stages. This developed media meets the validation test by media experts and material experts. This validation is assessed from the point of view of several predetermined aspects, such as aspects of presentation feasibility; content eligibility; and contextual assessment. This audio-visual media was validated by two Media Experts, and two Material Experts who mastered these aspects of the assessment. Experts state that the media developed is feasible to use. The implementation of this product was tested to review the effect of usage on student learning outcomes. The learning videos that have been developed are implemented in the experimental class. The results obtained from the two classes were tested through several test methods. These tests include the N-Gain test and the effect size test. In the control and experimental classes there was an increase in learning outcomes, but the increase in learning outcomes in the control class was much lower than the increase in learning outcomes in the experimental class. In addition, the learning media developed and implemented in the experimental class was stated to have a high level of effectiveness in improving student learning outcomes in the cognitive aspect.

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