

Development of Educational Media based Film Animation Podtoon on National Income Material

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ABSTRACT

This research uses research and development (R&D) methods using the ADDIE model. For the small test sample, 10 college students were randomly selected. Porton Movie. tests on college students. Data analysis techniques used are quantitative and qualitative data analysis techniques. The results of research and development are educational materials based on Poodton cartoons that can be accessed from smartphones through YouTube and Google Drive applications which can also be downloaded offline. In the practical test, students also gave a positive response with an average overall score of 5.80 included in the very practical category as well as an effectiveness test using the t-test table for significance levels $\alpha = 5\% = 0.05$ and $df = 9$, then obtained $t_{\text{hit}} = 17.72$ and $t_{\text{tab}} = 1.833$ with the conclusion $t_{\text{hit}} > t_{\text{tab}}$, so it is said that there is effectiveness (significance) The development of introductory teaching materials for macroeconomics based on poodton animated films with a significance level of 5% is very effective.

INTRODUCTION

Education in the digital era is education that must integrate information and communication technology in all subjects. With the development of education in the digital era, helping students absorb the abundance of knowledge quickly and easily. Educators and students can more easily find references, encourage creativity and independence, and retain information. Make it easier for teachers and students to find reference materials, encourage foreign language proficiency, encourage creativity, self-control and as a means of storing information. Digital technology can also help in changing human behavior, including education and college students, by discovering, collecting, recording, processing, and retransmitting necessary educational materials. Mixing teaching materials in the learning process with digital technology can be more fun and provide learning motivation, because mixing teaching materials is not monotonous. Education in the era of globalization is the integration of national education into global education. Students must be equipped with the right skills to thrive in the highly competitive digital age. The world of education faces a number of issues and challenges in the digital era, including the quality of education, the professionalism of teaching staff, culture (acceleration), learning strategies, management improvement challenges and scientific challenges. and technological advances. Technology in education is a system used to support learning to achieve the desired results.

Based on this, one of the breakthroughs is to make interesting teaching materials not limited to ordinary reading and the development of teaching materials will also be digital-based; i.e. teaching materials can be accessed via students' smartphones. The development of national income material in the form of animation will be developed with plots in Podtoon application-based materials and can be accessed without going through the application. It is considered suitable as a blended learning solution today because it is considered more accessible on students' smartphones both during regular class meetings and online meetings.

Research on the development of teaching materials based on animated films has been researched before. Sutopo, Hadi (2008), Humairoh, Safira, and Maryam Isnaini Damayanti (2012), Dini Agatha, Nabiela (2013) The overall results of the study confirm that the development of teaching materials based on animated films provides effectiveness for student learning outcomes. In addition, fostering student enthusiasm for learning because of *up to date and practical learning through the grasp of student smartphones* available on YouTube channels and *Google Drive*

The development of this educational material is a new thing. This stage is an innovative idea to open up the boundaries of space and time for students. Podtoon-based learning animation videos are animated videos that can be filled with topics and can be used as learning aids because of their interesting nature. The purpose of the construction is to detect and analyze the impact of Podtoon cartoon-based teaching materials on introductory macroeconomics subjects that can improve student learning outcomes. , test and find out the feasibility of

teaching materials on the learning material "National Income" cartoon Podtoon based to improve student learning outcomes.

THEORETICAL REVIEW

Learning Media

Gagne (1970) argues that teaching materials are all teaching materials that help students. Similarly, Briggs (1977) explains that media are tools used to communicate topics to students. Furthermore, Gerlach and Ely (1971) argue that a complex set of learning aids, including people, documents, or research, allows students to understand so that they can acquire knowledge, skills, and attitudes. Supported by Ashhar (2012: 8) states that learning materials are all elements needed in the teaching and learning process, both software and hardware.

Multimedia means various types of media and devices in an integrated manner in a learning process or activity. Multimedia learning involves the senses of sight and hearing through the medium of text, still images, moving images and sound, as well as interactive computer media and information technology, news and communication. In the context of communication, digital means a system that uses computers and other electronic equipment. Digital media is media whose contents are a combination of types of data, text, voice, and images stored in digital form and distributed through fiber-optic-based networks to broadband systems, satellites, and microwaves. (Flew, 2008).

Digital media is also defined as electronic media used to store, transmit and receive digital information. Radio and television were the first generation of digital media. Digital media is synonymous with the internet, as digital media is often shared, broadcast, or posted on the internet. However, digital media can also be viewed offline after the media file is downloaded or saved on a computer or smartphone.

Animation Movie

Film is also known as a moving image, which is a series of still images that move quickly and are projected to create a vivid impression. and move. Film is a medium that presents audiovisual messages and movement. (Rudi and Cepi 2008:19) Thus, the film provides significant understanding to its audience. Animation, also colloquially known as cartoon, is a film that is the result of processing hand-drawn images into moving images. At the beginning of its invention, animated films were made with sheets of drawing paper, which were then "played" to create a moving visual effect. With the help of computers and computer graphics, animation becomes very easy and fast. Indeed, these days three-dimensional cartoons are more viewed than two-dimensional cartoons.

Animation media is communication in the form of moving images accompanied by sound and is a step in the development of science and technology. The use of animation cannot be separated from the help of computers. Animation is a collection of images that are processed in such a way that they produce movement. Animation creates the illusion of movement by depicting or displaying a sequence of images that change (rise) at high speed.

Animation is used to describe the movement of an object. This allows a stationary or stationary object to move and gives the impression that it is alive. Media animation is the process of making movement from various media or objects with effects and filters, motion, sound that go along with motion animation. Animation on multimedia applications can promise more interesting and dynamic animations because it can do things on applications that are impossible or complicated in the real world.

The animation can be two-dimensional, three-dimensional or through various special effects. Regardless of the form of animation used, it has the potential to make a difference in the programming that supports it because human nature prefers something dynamic over static. However, the animation production process is not easy. Experience, skills and expertise are required for production purposes. Animation professionals who are often referred to as animators need a large number to produce quality animation. Computer animation follows computer graphics to add a volumetric dimension to the representation of motion.

According to Furoidah (2009), learning animation media is a media that contains a series of images that are processed in motion and equipped with sound so that learning messages are easy to remember and capture. Animation training materials can be used as ready-made teaching tools whenever used to teach a topic.

Development of National Income Animation Film Teaching Materials

The concept of developing Podtoon cartoon-based teaching materials has influenced the transition of learning to digital form both in terms of content and system. Educational materials based on podtoon animated films are an innovation that contributes greatly to changing the learning process. The learning process is no longer just listening to the teacher explain the material, but students also practice other activities such as observation, cognition, demonstration. and more. Surjono (2013) argues that digital learning materials that are currently popular because of their flexibility and efficiency are a way of delivering learning materials via the internet that can be accessed anytime and anywhere.

National income can be interpreted as the entire amount of income received by all family households (RTK) in a country from the delivery of factors of production in a period, usually for one year and the value of production produced by all members of a country's society in a given time.

National Income Calculation Approach

- The expenditure approach can be calculated by adding up all expenditures in the form of consumption, investment, government spending, and the difference in exports minus imports.
→ $Y = C + I + G + (X - M)$
- Income approach, National Income can be calculated by adding up the total returns in the form of wages, rent, interest, and profit.
→ : $Y = r + w + i + p$

- Production Approach, Summing the value of all products produced by a country from the fields of industry, agriculture, extractives, services, and commerce during a certain period. Value
The products calculated by this approach are the value of services and finished goods (not raw materials or intermediate goods).
→ $Y = (PXQ)_1 + (PXQ)_2 + \dots + (PXQ)_n$

METHODOLOGY

This research design is research and development or Research and Development (R&D). According to Sugiyono (2016: 407) R&D is a research method used to produce certain products, and test the effectiveness of these products. In this research, the resulting product is the development of teaching materials based on *podtoon animated films* in the introductory macroeconomics course.

RESULTS AND DISCUSSION

The research and development procedure for this learning media adapts the development model, including:

1. Potential Problems (Analysis)

a. User Analysis

User analysis which is adjusted to the teacher's computer mastery for classroom learning and students' ability to master the media because users of this animated video learning media are students who really like animation, with interesting shapes and interesting stories development researchers study cartoons In accordance with its characteristics, the student thinking stage is at the stage of imaginative and creative thinking. Interns don't like theoretical material.

b. Curriculum analysis

Analyze the curriculum to determine which materials require teaching materials. There are some courses that have difficulty delivering material in class. One of the courses is introduction to macroeconomics. The introduction of macroeconomics is difficult due to the lack of examples and teaching materials, so students find it difficult to understand the content of the subjects taught.

c. Means Analysis

Finally, analyze the needs of existing facilities and infrastructure in the field. Researchers found that it has quite complete facilities in the form of LCD screens, computers, laptops and smartphones to support learning through learning animation video media. .

2. Design (Planning)

a. Learning Animation Video Media Design

The second stage is the design stage. The second stage is to design a predetermined product. The design of this product is carried out through two stages. First, choose and determine *the software* to be used. *Software* that will be used to create this learning animation video includes *Podtoon, Pinnacle Studio,*

Format Factory, Audacity. Second, designing and developing scripts in the form of *flow charts* and *storyboards* and making GBIM (Media Content Outline).

b. Development of Learning Animation Video Media

This production step turns the script into a program containing text, sound, images, animations. In this case it is a multimedia learning animation video product. Prior to direct-to-learning application, animated video programs that support learning have been tested and validated. Product validation can be done by presenting experts or senior experts, in this study media experts and material experts.

c. Application of Learning Animation Video Media

This trial was carried out to several students and was carried out gradually and alternately. After testing the product successfully and allowing revisions that are not too important, then the product in the form of learning animation video media is applied in the teaching and learning process

d. Media Evaluation of Learning Animation Video

In usage trials, researchers always evaluate product performance in terms of learning animation video media programs to find out existing weaknesses, so that they can be used for refinement and manufacture of new products

Product Description:

Digital technology-based learning makes it easier for students to find access to scientific information. Therefore, this is the background of the presence of *poodton* animated video-based learning media .

Poodton animation video is the latest innovation for the world of education, especially for lecturers who teach introductory macroeconomic theory courses. Because it is based on *poodton* animation videos, in addition to making it easier for lecturers in the online learning process, it also makes it easier for students to access learning content from anywhere and anytime

Product Printscreen :

1. Here's the initial look of digital-based comics can be accessed via youtube with
<https://www.youtube.com/@putrisarimjsilaban8022/about> links and google drive
https://drive.google.com/drive/folders/1sGz1vO2GAnIq_-ZxFKdZHpWhVPFvVvWC?usp=share_link

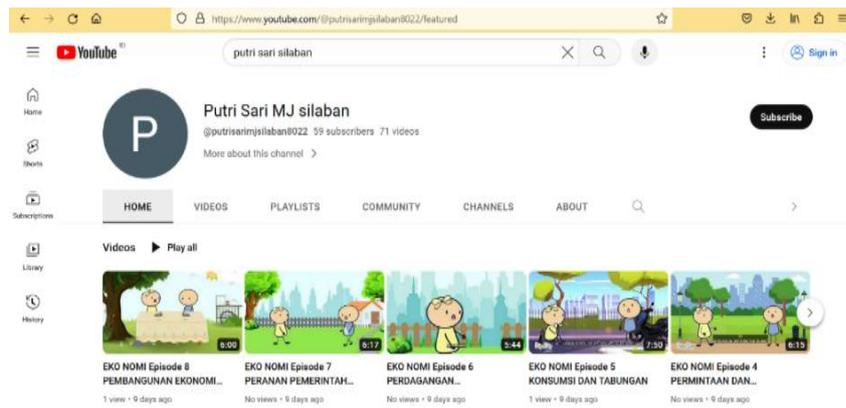


Figure 1. Youtube screen

2. After that, there is already a material "National Income", directly accessible without using a registration account on youtube or google drive, readers / students are free to access materials / materials by watching from *youtube* or uploading from google drive links



Figure 2. National Income Material

3. *Development & Implementation*

The development carried out by researchers is to make digital comic-based learning media products. Implementation of product results in the form of learning media that can be accessed using *smartphones* and laptops. At the development stage, researchers realize the design that has been made. To create a digital comic there are several stages that are passed:

3.1 Development

At the development stage, researchers realize the design that has been made. To make a digital animated film, there are several stages that are passed:
from:

1. *Pre-production:*
2. *Production:*
3. *Post-production:*

3.2 Implementation

Expert validation of poodton-based materials was carried out by Dr. Dede Ruslan M.Si. validation is carried out so that poodton-based teaching materials can be used or valid. In addition, validation aims to obtain information, criticism and suggestions on the teaching materials developed

1. Validation 1 In stage 1 validation, the media is assessed by material experts and media experts to determine the feasibility of the material created and the feasibility of the media developed. Input and suggestions from material experts and media experts are used as a basis for media improvement.
 - a) Expert assessment of National Income Material material from the media created

Table 1. Material Expert Test Results

No	Assessment Aspects	Assessment Score
1	Material	4,30
2	Language	4,17
Average Score		4,23

In the aspect of material, the average score is 4.30 which in the conversion table is categorized as very feasible. Meanwhile, in the linguistic aspect, the average score of 4.17 is included in the decent category. Overall, the average score of all aspects is 4.23 and is categorized as very decent. Based on the results of expert tests, there is no need for revision so that category validation can be very feasible and proceed to the media validation stage.

- b) Evaluation of media members

Table 2. Media Expert Test Results

No	Assessment Aspects	Assessment Score
1	Visual	4,22
2	Alignment	4,18
Average Score		4,2

In the table, the results of the assessment of media experts get an average score of 4.2 where in the conversion table it is categorized as very feasible. Furthermore, the research continued on assessment by course lecturers in validation 2

2. Validation

Stage 2 validation was carried out by Dr. Khairani Matondang, M.Pd., as an introductory practitioner of macroeconomics at the Faculty of Economics

Unimed. Assessments carried out by lecturers include assessments on learning materials and media. The following are the results of the assessment of lecturers of the introduction to macroeconomics course on the development of poodton animation-based teaching materials.

Table 3. Course Lecturer Assessment Results on Learnin Material

No	Assessment Aspects	Assessment Score
1	Material	4,20
2	Language	4,30
Average Score		4,25

The table shows the average score of the learning material assessment of 4.17. Based on the value conversion table, the learning material is included in the eligible category.

Table 4. The average score of the learning media assessment

No	Assessment Aspects	Assessment Score
1	Visual	4,30
2	Alignment	4,20
Average Score		4,25

The shows the average score of the learning media assessment where in the conversion table the value included in the category is very feasible. In addition, course lecturers also want a physical form of media as an alternative to learning when there is no internet connection.

The following is a summary of all aspects assessed in validations 1 and 2:

Table 5. Summary of all aspects

No	Aspects	Ahli Material	Ahli Media	Tins	Average	Katagori
1	Material	4.30	-	4,20	4,25	Very decent
2	Language	4,17	-	4,15	4,16	Proper
3	Visual	-	4,22	4,30	4,26	Very decent
4	Alignment	-	4,18	4,20	4,19	Proper

Overall average	4.21	Very decent
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Based on the average validation test of 2 experts and 1 lecturer, an average validation of 4.21 in the conversion table is categorized as very feasible. It can be concluded that the development of "National Income" teaching materials based on animated films is very feasible to be tested

Effectiveness

To test the effectiveness of this teaching material, trials will be carried out on limited small groups with a *before-after (one to one)* experimental design using *paired sample t test*. The trial of the effectiveness of teaching materials based on podtoon animated films was carried out on a small sample of 10 students who had completed introductory macroeconomics courses. This before after experimental design tested the effectiveness of podtoon animated film-based teaching materials on learning outcomes before and after treatment using podtoon animated film-based teaching materials, so that a research hypothesis test was carried out using a t-test (Sugiyono, 303: 2019)

By using the t-Test table for significance levels $\alpha = 5\% = 0.05$ and $df = 9$, t is obtained in the table, namely $t_{tab} = 1.833$.

Comparing t_{hit} with t_{tab} :

$$t_{hit} > D_{tab} \rightarrow 17,72 > 1,833$$

Conclusion: The value of $t_{hit} > t_{tab}$, so it is said that there is a real influence (significance) in the development of National Income teaching materials based on poodton animation with a significance level of 5%.

Practicality Test

The practical test of developing teaching materials based on poodton animation was carried out with the aim of determining the level of ease, usability and effectiveness of time by students, known the results of the practicality test of this product were carried out by conducting usability tests in the field to 10 participants of the economic education study program, faculty of economics, Unimed. This number is based on the minimum criteria of the usability test of the questionnaire method with users (Nielsen, 1993: 224). The following are the results of the reusability test on digital comic learning media:

Table 6. Usability Test Results

No	Assessment Aspects	Average Score	Information
1	Media use	5,82	Very Worth It
2	Media quality	5,79	Proper
Overall average		5,80	Very Worth It

In the table, the usability test results show an overall average of 5.80. Based on the conversion table, the value of teaching materials based on animated films, poodton is included in the very feasible category.

CONCLUSION AND DISCUSSION

The results of this research and development are in the form of teaching materials for national income materials for poodton animated films where the results of validity tests by experts show that the development of teaching materials is very feasible. Similarly, the results of the practical test assessment conducted by the supervisor results are very practical.

And the results of the effectiveness test assessment concluded that the results of the resepondent data were good. This shows that teaching materials developed based on animated films produced have proven to be very effective in improving student learning outcomes.

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