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Development of *Instagram* Social Media-Assited Physics Practicum Videos as Learning Alternatives

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Abstract. The spread of the COVID-19 virus has made the World Health Organization (WHO) declare a global pandemic that has resulted in a lockdown and requires working from home, studying from home, and worshipping at home. The sudden decision given by the government to move home learning made various educational institutions unprepared to conduct online learning and made educators confused in carrying out the learning process, especially in physics practicum learning. This study aims to develop a practicum video assisted by Instagram as an alternative to learning. The type of research used is research and development (Research and Development) with the Plomp design model. This study uses several stages, namely: Preliminary Investigation, Design, Realization / Construction, Test, and Implementation. The feasibility of the product is carried out by means of a material expert test and a media expert test. Based on the results of the feasible criteria validation, the percentage of each expert was obtained by 91.8% stated with very feasible criteria by material experts, and 94.6% stated with very feasible criteria by media experts. Then a small group test was conducted to 20 students with a feasibility criteria percentage of 74.58% stated with feasible and the feasibility criteria of a field test to 52 students amounting to 74.42% stated with feasible.

INTRODUCTION

The spread of covid 19 was first in Wuhan, China at the end of 2019 [1]. This virus infects the human respiratory tract. The source of this virus is thought to have come from animals, namely bats [2]. Due to the rapid spread of COVID-19, the world health agency declared a global pandemic on March 11, 2020. As a result of this pandemic, many sectors and fields were disrupted. Both in terms of behavior patterns, health, social, economic, even in the field of education [3]. Indonesia has implemented a lockdown and requires working, studying and worshipping from home [4]. The sudden decision given by the government to move home learning made various educational institutions unprepared for online learning, and became a problem for education [5].

Various efforts to provide online classes have been carried out by teachers. Both through learning portals and video conferencing applications [6]. Some teachers still feel unfamiliar with various types of online learning tools [7]. However, both teachers and educators are required to be able to do online learning [8]. The use of video is widely chosen and used to support teacher learning, because it can provide opportunities for teachers to reflect on teaching practices [9–13]. Video has become a popular learning tool or media that focuses on students' cognitive [14]. Video is an audiovisual media that has better capabilities, because the media can cover the senses of sight and hearing [15]. Learning video media is becoming a trend among teachers today [16].

Instagram is a social media created for sharing pictures and videos [17]. Nowadays, Instagram is not only used as a real-time social media, but can also be used as a learning medium. [18]. Unlike other learning media, Instagram is only specifically for sharing images and videos with descriptions that clarify the image or video [19]. The use of Instagram as a learning medium provides educative information to other Instagram users, which makes the teaching and learning process can be done in large and small groups. [20]. There are still few studies that use Instagram as a learning medium.

Arsyad (2013) stated that teaching through audio visual is production and use of materials absorption through sight and hearing and not entirely depending on the understanding of the word or similar symbols [21]. According to

Riyana (2007) instructional video media is a media that presents audio and visual that contains good learning messages that contain concepts, principles, procedures, theory of application of knowledge to help understanding of a learning material[22]. this means that the video media must contain theory, procedure, and practice, so that the message is conveyed properly

This research focuses on developing videos on basic physics practicum II material and uploaded on IGTV Instagram so the duration is longer. in previous research about the development of learning videos through Instagram and product videos are also only 1 minute long [11]. But the use of social media as learning media is very good [23] [19]. On research on virtual laboratories with PhET simulation, has not given satisfactory results for learning practicum [24]. So, video development in practical learning is considered more effective and feasible [25] [26]. The use of Instagram features such as IGTV and others can further support learning. In this study, the use of Instagram social media in practical learning can be maximized.

This study are also relevant to previous research by Reza [11] that the use of Instagram social media is appropriate to be used as an alternative to learning. However, by maximizing the use of the Instagram IGTV feature, learning videos can be loaded with a longer duration better than from previous research. The most widely used social media by students is Instagram [27-30].

The disadvantages of other social media such as facebook, twitter, and path are : (1) cannot be brought into learning activities [31], (2) online learning using Facebook can only be effective if use a laptop/computer [32], Learning materials are not only on one YouTube channel or many video recommendations are not appropriate, so that it makes students confused to determine the right learning resources [33–35]. With the use of an Instagram account, students will have no difficulty and be disturbed by recommendations in finding material such as YouTube because it is already available in it.

Responding to the urgent need to fulfill practical learning needs, this research was conducted to attract and reach students' habits in using Instagram social media to provide innovation and renewal opportunities in development research and also to attract students' interest.

METHOD

The research development model is Research and Development (R&D) with the Plomp design model [36]. This research model uses five stages: (1) preliminary investigation, (2) design, (3) Realization/Construction, (4) Tes, Evaluation and Revision, dan (5) implementation [37].

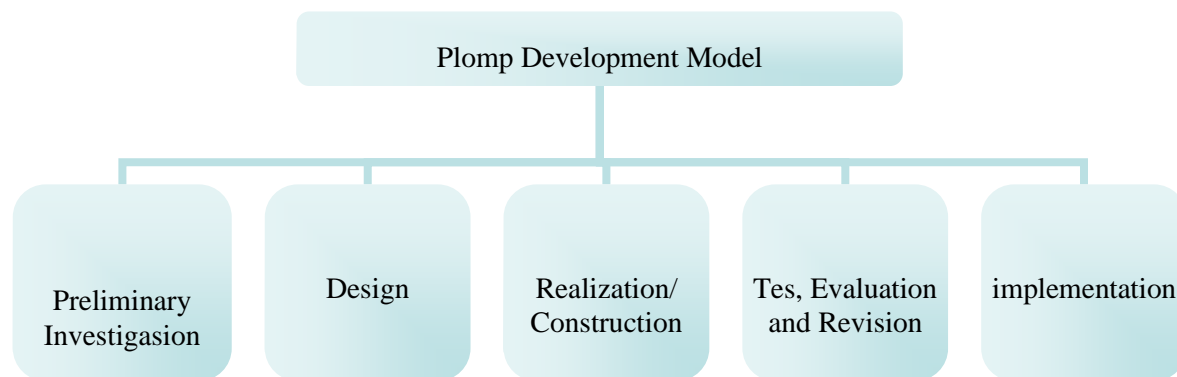


FIGURE 1. Plomp Development Model

The following is a development research procedure using the Plomp development design : (1) Preliminary Investigation, collecting data needed for the development of physics practicum videos by giving google form questionnaires to 224 physics education students located at Raden Intan State Islamic University Lampung. In addition, the author also conducted a literature study related to data and literature problems. (2) Design, The design of this product is made into a scenario and are the components in the practicum learning video that are made as attractive as possible so that students are interested in learning. (3) Construction and Realization, At this stage the preparation of production equipment is carried out. then take a video of the practicum demonstration and the final is

the editing process. (4) Product Testing and Validation, testing was carried out on several experts to ensure the content in the practicum learning video was in accordance with the feasibility of the video for students. Experts consist of media experts and material experts. In addition to product validation, researchers conducted product trials with small group tests and field tests. The small group test was carried out on 20 students of Physics Education at Raden Intan State Islamic University Lampung in term 4 of class D, and field tests on physics education students at Raden Intan Lampung State Islamic University in term 2 with 52 students by collecting data in the form of a questionnaire via google form. (5) Implementation, After testing the product results, the author can interpret the results by analyzing simply by using the results of the feasibility test by media experts and the results of taking questionnaire data on second term students of Physics Education at Raden Intan State Islamic University Lampung, then creating an account and uploading it to IGTV instagram.

The test is carried out by testing experts and students. Experts consist of media experts and material experts. Before being tested, the product is validated by media experts and material experts to be tested for feasibility. The subject is a physics education student in term 2 and 4 at Raden Intan State Islamic University, Lampung. The trial consisted of a small group test conducted on 20 term 4 students and a field test conducted on 52 term 2 students.

The research instrument used is a questionnaire instrument. The questionnaire (questionnaire) includes two stages, namely a test questionnaire by experts and a respondent test questionnaire. Expert test questionnaires were used to collect data on product feasibility based on media and practical materials. While the respondent's questionnaire was used to be given to research subjects to obtain the results of student interest in the practicum video developed [11,38,39].

Technical data collection in this development research in the form of expert test questionnaires and student response questionnaires. The expert test questionnaire and the student response questionnaire were then analyzed using the Likert scale [40,41].

1. Expert Validation Value

$$\bar{x} = \frac{\sum xi}{n} \times 100\%$$

Information:

\bar{x} = Average value of one indicator

$\sum \bar{x}$ = Total value of validator

N = Number of validators

TABLE 1. Scoring Criteria [41]

Interval	Criteria
$0\% \leq x \leq 20\%$	Very Feasible
$20\% < x \leq 40\%$	Feasible
$40\% < x \leq 60\%$	Quite Feasible
$60\% < x \leq 80\%$	Not Feasible
$80\% < x \leq 100\%$	Very Not Feasible

2. Student Response Questionnaire

$$P = \frac{\sum x}{\sum xi} \times 100\%$$

Information:

P = Percentage

$\sum x$ = Number of respondents' answers in one item

$\sum xi$ = Number of item's ideal value

TABLE 2. Interpretation of Attractiveness [11]






Interval	Criteria
$0\% \leq x \leq 20\%$	Very Feasible
$20\% < x \leq 40\%$	Feasible
$40\% < x \leq 60\%$	Quite Feasible
$60\% < x \leq 80\%$	Not Feasible
$80\% < x \leq 100\%$	Very Not Feasible

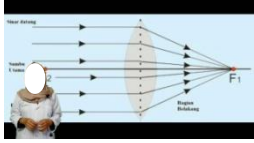
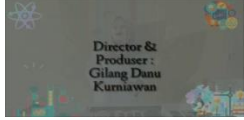
RESULTS AND DISCUSSION

The result of this development research is a physics practicum video uploaded to Instagram as an alternative to learning. This research uses Plomp's development model with 5 stages of flow.

Initially, a case study was conducted on the problem of eliminating physics practicum learning that occurred due to the pandemic. After that, interviews were conducted about the use of social media as an alternative to learning. Instagram has the potential to be a learning media that can be used because many students use it. So, the author developed a practicum video assisted by Instagram social media as an alternative learning. In the second stage, product design is carried out in the form of a video flow scenario which can be seen in the following table:

TABLE 3. Design

Scene	Duration	Script	Image
Intro	30 second	The intro video shows a little glimpse or snippet of the practicum demonstration that will be carried out.	
Opening	30 second	The practicum assistant greets, provides an explanation of the title of the experiment to be carried out, the purpose, to the experiment to be carried out.	
Introduction of tools and materials used in the practicum	30 second	The practicum assistant mentions one by one the tools and materials used in the experiment to be carried out	
Set of tools and materials	1 minute	Practical assistant demonstrates how to assemble tools	
Carry out practical experiments	1-2 minute	Practical assistant conducting experimental demonstration in practicum	
Discussion of practical results	1-2 minute	The practical assistant discusses the results of experiments or practical demonstrations that have been carried out	

Scene	Duration	Script	Image
			
Outro	30 second	The practicum assistant says hello, followed by post credit outro learning videos	

The third stage of product development and manufacture is in accordance with the initial design. The practicum video is made in accordance with the guidelines for the basic physics practicum module II. There are 6 practical videos created and uploaded to Instagram. The following is a product display uploaded to IGTV Instagram.

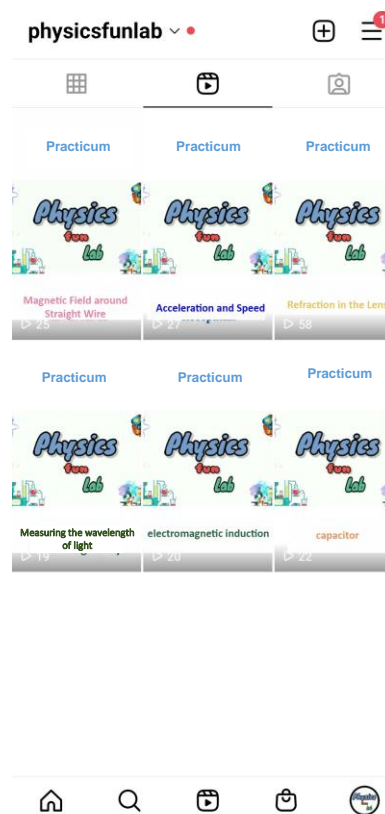


FIGURE 2. Product results on IGTV Instagram (Create by author)

The profile display on Instagram also contains knowledge about physics figures that are in accordance with the practicum material on the left and also added "fun fact" on the right related to the practicum material to make it more interesting for users.

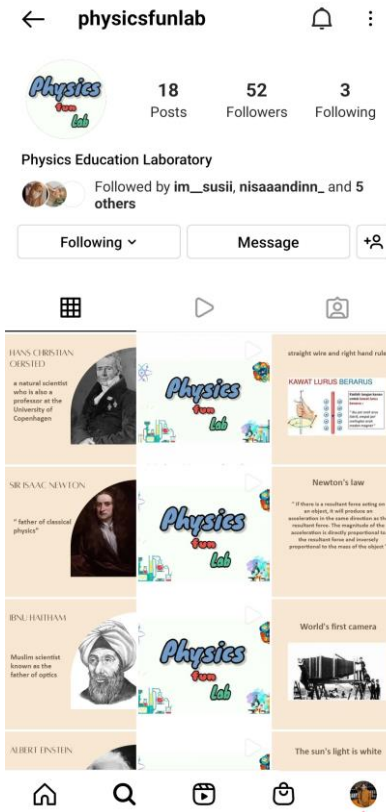


FIGURE 3. Product front view (Create by author)

The fourth stage is testing with validation. Validation was carried out with 3 media experts and 2 material experts. Validation is done by filling out a questionnaire questionnaire by media experts with assessment aspects including presentation components, attractiveness and appearance components, and utility. There were 20 questions assessed by 3 lecturers at the Raden Intan State Islamic University, Lampung. Then, the data from the media expert validation is presented in the following figure:

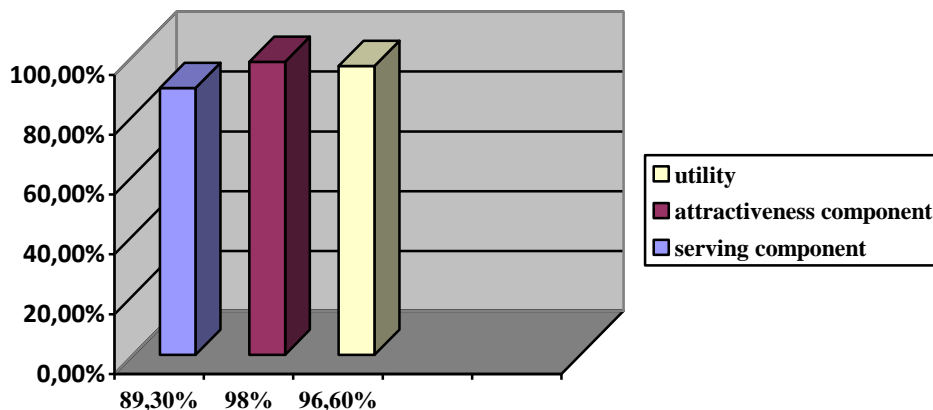


FIGURE 4. Media Expert Validation

Based on the results of the validation of media experts, the percentage of feasibility of physics practicum learning video media assisted by Instagram social media as an alternative learning amounted to 89.3% in the aspect

of the presentation component, 98% on the aspect of the attractiveness of the display component, and 96.6% on the utility aspect. The average results obtained on all aspects of physics practicum learning media video assisted by social media Instagram as a learning alternative of 94.6% and suitable for use.

The second validation was carried out by filling out a validation questionnaire by material experts with assessment aspects covering material coverage, material accuracy, science, and facilitating student interest in practical material. There are 17 questions assessed by 2 material experts. Then the data from the material expert validation is presented in the following figure:

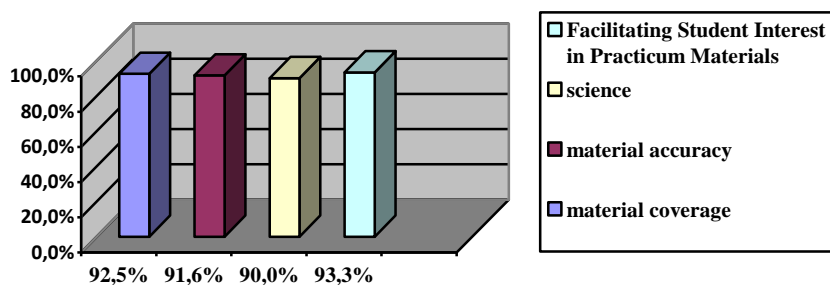


FIGURE 5. Material Expert Validation

Based on the results of the material expert validation, it was found that the percentage of the feasibility of physics practicum learning media assisted by Instagram social media as an alternative learning was 92.5% in the aspect of material coverage, 91.6% in the aspect of material accuracy, 90% in the science aspect, and 93, 3% on the aspect of facilitating student interest in practical material. The average results obtained on all aspects of physics practicum learning media video assisted by social media Instagram as a learning alternative of 91.8% and suitable for use.

Overall the products made have a high level of feasibility for use in learning. Both the results of the validation of the media experts and the results of the validation of the material experts both fit into the very feasible criteria. The use of Instagram social media results in an innovative update on the use of social media in learning. This is supported by the high percentage of eligibility for each expert.

Product Trial

The last stage is the product trial which is carried out after the practicum video assisted by Instagram social media as an alternative learning is said to be very feasible by all experts. Then the practicum video assisted by Instagram social media as an alternative learning was tested on Physics Education students at Raden Intan State Islamic University Lampung. The trial was carried out in 2 stages, small group trials and field trials..

Small group trials were conducted on 20 fourth term students of Physics Education at Raden Intan State Islamic University, Lampung. The results of the test data carried out can be seen through the figure.

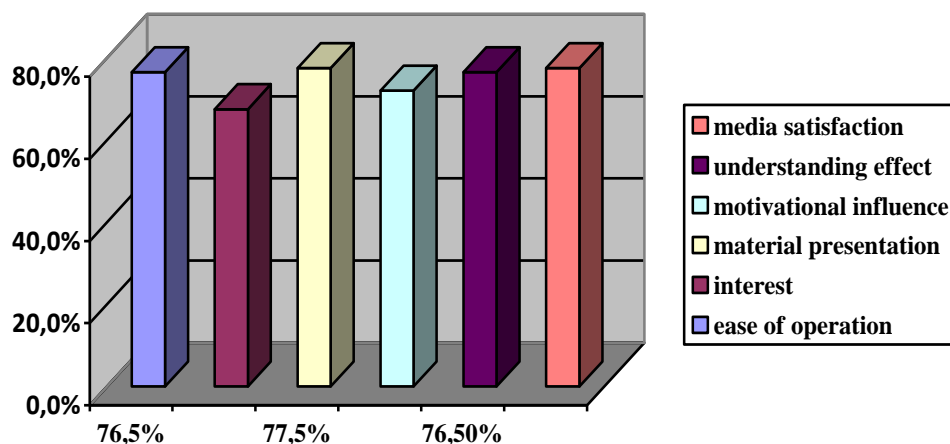


FIGURE 6. Small Group Test

Based on the results above, the score on the aspect of the ease of operating learning media is 76.5%. In the aspect of interest in using learning videos in physics practicum learning, the score is 67.5%. In the aspect of presenting the material in the practicum learning video, it got a score of 77.5%. In the aspect of the influence of learning videos on student learning motivation, the score is 72%. In the aspect of the influence of learning videos on the understanding of practicum material, the score is 76.5%. And on the aspect of satisfaction using learning videos as a learning medium for physics practicum, it gets a score of 77.5%. Then the average in all aspects gets a value of 74.58% with a feasible criterion.

Field trials were conducted on 52 second term students of Physics Education, Raden Intan State Islamic University, Lampung. The results of the test data carried out can be seen through the following figure:

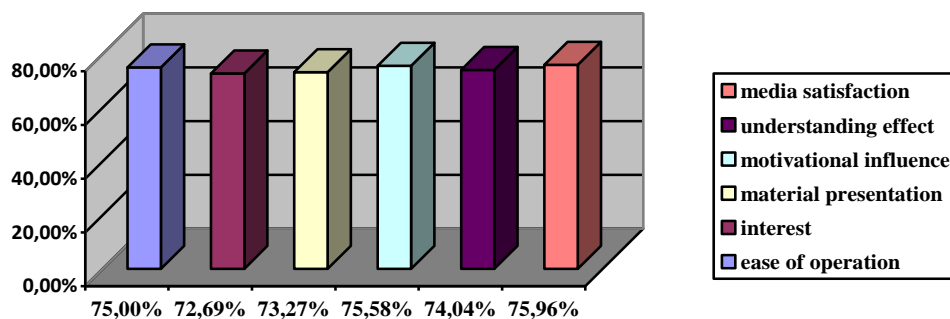


FIGURE 7. Field Test

Based on the results above, the score on the aspect of the ease of operating learning media is 75%. In the aspect of interest in using learning videos in physics practicum learning, the score is 72.69%. In the aspect of presenting the material in the practicum learning video, the score is 73.27%. In the aspect of the influence of learning videos on student learning motivation, the score is 75.58%. In the aspect of the influence of learning videos on the understanding of practicum material, the score is 74.04%. And in the aspect of satisfaction using learning videos as a learning medium for physics practicum, it gets a score of 75.96%. Then the average in all aspects gets a value of 74.42% with a feasible criteria.

From the results of the validation and test get the satisfactory result, that is very feasible. The product is very feasible to use. This is in accordance with the existing theory. In terms of attractiveness, appearance, convenience, and delivery of messages, the facilities used in the form of smartphones and social media in online learning can improve student learning outcomes and ease in obtaining various learning resources [42-44]. Students need interesting, innovative and easy-to-use teaching materials to convey messages well as the right visualization to

provide understanding to students [16,45]. Video is included as a good audio-visual media to convey messages [46,47].

The use of social media Instagram adds to the interest and interest of students to learn using learning videos. The ease of operation and simple presentation makes learning comfortable, the feasibility of the media is considered very good and satisfied by students to be used in distance learning as a result of what it is now.

The addition of "feeds" on the initial appearance of Instagram about physics figures and interesting facts in the practicum material, adds to the interest of the media. This is what makes it different from previous studies. In addition, many studies that also support the use of video as a learning medium are very interesting for students [12,16,46–48].

The advantages of the developed product are: (1) can be used as an alternative to practical learning in distance learning, (2) use online wherever and whenever, (3) flexible and sustainable, because it can be used continuously, (4) not boring, because the use of social media Instagram is closer and interactive with students, (5) and can convey learning messages well. The disadvantages of developed products are: requires internet access and an instagram account.

CONCLUSION

The development of this research resulted in a practicum video assisted by Instagram social media as an alternative to learning. The results of the feasibility validation obtained an average of 94.6% by media experts and an average of 91.8% by material experts. The results of the student response test to the developed media are very feasible to use.

The use of Instagram social media makes learning innovative and a solution so that practical learning can continue during the covid 19 pandemic. The use of easy media also helps teachers in online learning by simply making videos and uploading them to Instagram. Media development can also be expanded by adding other practicum materials. Instagram social media can be an alternative media so that students do not feel bored with traditional forms of learning.

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