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The Development of Nearpod Interactive Multimedia Using Problem Based Learning Models on Civics Learning in Elementary School

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Abstrak

Perkembangan zaman yang semakin cepat membuat banyak perubahan di berbagai sektor. Makin banyak fasilitas dan kemudahan yang dapat digunakan dalam pembelajaran. Namun pada kenyataannya media yang digunakan guru pada pembelajaran baru sebatas menayangkan video ataupun PPT melalui infocus. Hal ini mengakibatkan siswa menjadi kurang aktif dan kurang berpartisipasi dalam proses pembelajaran. Tujuan penelitian ini adalah untuk mengembangkan multimedia interaktif nearpod menggunakan model *problem based learning* yang valid dan praktis untuk digunakan dalam pembelajaran PPKn di kelas IV SD. Penelitian ini mengunakan model 4D dengan empat tahapan yaitu *define, design, develop,* dan *disseminate*. Data diperoleh dari angket validasi dan angket praktikalitas. Subjek penelitian ini adalah 3 validator ahli, 1 guru, dan 26 siswa kelas IV SDN 24 Ujung Gurun. Hasil uji validitas memperoleh hasil 90% validasi materi., validasi bahasa memperoleh hasil 88%, validasi media memperoleh hasil 98% dengan kategori sangat valid. Selanjutnya untuk hasil praktikalitas respon siswa memperoleh hasil 91% dan respon guru sebesar 96% dengan kategori sangat praktis. Hasil penelitian ini menunjukkan bahwa penggunaan multimedia interaktif nearpod dengan model *problem based learning* dapat meningkatkan partisipasi siswa dalam pembelajaran PPKn di Kelas IV SD sehingga meningkatkan kualitas pembelajaran.

Kata Kunci: 4D, multimedia interarktif, nearpod, problem based learning, PPKn

Abstract

The rapid development of the times has made many changes in various sectors. Some more facilities and conveniences can be used in learning. But in reality, the media used by teachers in learning is only limited to showing videos or PowerPoint through a projector. It makes students less active and less participate in the learning process. This research aims to develop nearpod interactive multimedia using a problem-based learning model that is valid and practical for use in civics learning in grade IV SD. This research uses the 4D model with four stages, namely define, design, develop, and disseminate. Data were obtained from validation questionnaires and practicality questionnaires. The subjects of this study were 3 expert validators, 1 teacher, and 26 fourth-grade students of SDN 24 Ujung Gurun. The validity test results obtained 90% material validation, language validation obtained 88%, and media validation obtained 98% with a very valid category. Furthermore, the results of the practicality of student responses obtained 91% and teacher responses of 96% with a very practical category. The results of this study indicate that the use of Nearpod interactive multimedia with a problem-based learning model can increase student participation in learning Civics in Class IV elementary schools and thus improve the quality of learning.

Keywords: *4D, interactive multimedia, nearpod; problem based learning, civic learning*

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INTRODUCTION

The rapid development of the times has made many changes in various sectors. The education sector is a field that is very dependent on the times. As time goes by, the way of thinking and also human science is increasingly advanced. The more facilities and conveniences that can be used in learning. In the past, learning only focused on the teacher. However, in the current 21st century learning, learning is more focused on students. In 21st century learning, teachers must use technology-based learning media to be able to create 4C competencies (Critical thinking and problem solving, creativity, collaborative, and communication) in students.

Syahputra (2018) explained that in 21st century learning students are directed to have the following special characteristics 1) Able to think critically, have the will and ability to solve problems, be able to communicate, be creative, collaborative and innovative, 2) Have the will and ability to be digitally literate, and new media that integrated ICT 3) Initiative, flexible and adaptive.

The use of interactive multimedia is a form of using ICT in learning. ICT stands for information and communication technologies which is a form of terminology that includes all technical equipment for conveying information (Septiana, 2019). Ma'ruf (in Septiana, 2019) explained that the benefits of using ICT in learning are 1) increasing student learning motivation, 2) effective and efficient for digital portfolios, 3) adding students' insights and mindset, 4) increase the spirit of togetherness and become a measuring tool for learning similarities with other countries.

One of the interactive multimedia that can be used in learning is Nearpod. Nearpod is a cloud-based application that is easy to use. This application can be accessed via https://nearpod.com/ . students can easily access Nearpod through various electronic devices that have internet connection (Burton, 2019). Rahim & Mahmood (2020) explained that Nearpod is a learning medium that can involve all students in learning activities in class. Nearpod has several features that can be used in one application such as; video, audio, slides, web content, virtual reality (VR), 3D objects, PhET simulations, Field Trips, BBC Video, Slidebox , online reading library, open-ended questions, polls, quizzes, collaborative boards, and many other features that provided.

As explained by Sari & Ardianti (2021) that in the use of interactive multimedia the Problem Based Learning (PBL) model is a model that is very suitable for use in the learning process. Problem- Based Models Learning (PBL) is a learning model that directs students to be able to build their own knowledge and skills in solving real problems related to everyday life (R. P. Sari et al., 2020).This is because the Problem Based Learning (PBL) model is able to hone students' critical thinking skills. The ability to think critically is an ability which must be mastered and developed by students in learning in the 21st century (Susanto, 2021). The Problem Based Learning (PBL) model is an innovative learning model that teachers can use to make students active and able to improve students' critical thinking skills in solving problems (Handayani & Muhammadi, 2020). This model makes real problems as the basis for learning so as to improve thinking skills and other skills (Zuryanty et al., 2020).

Based on the preliminary studies that have been conducted by researchers at five elementary schools in Cluster I Kec. Padang Barat namely SDN 24 Ujung Gurun, SDN 05 Padang Pasir, SDN 23 Ujung Gurun, SDN Percobaan, and SDN 22 Ujung Gurun. It was found that the teachers in the five elementary schools had already used ICT-based media in some of their learning materials. However, the media used has several drawbacks, namely (1) learning media is classical. (2) The media used is only in the form of learning videos. (3) Learning media includes writing and pictures only. (4) The learning media used by the teacher does not involve students. (5) The learning media used are varied but still simple and ordinary.

The media used by teachers in the five primary schools are limited to showing videos or PPT through infocus. The use of these two types of media is considered less innovative because this has often been done during learning. As a result, students become less active and participate less in the learning process. In another

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case, the use of these two media makes students easily bored in carrying out the learning process. So that it makes student learning motivation decrease.

Based on these problems, it needs media development that is used in learning. Especially in Civics subjects in grade IV so that the characteristics of students demanded in 21st century learning and educational goals can be achieved in accordance with ATP. The development of this interactive multimedia is one of the challenges for researchers to be able to develop nearpod interactive multimedia that can be used in Civics learning in grade IV Elementary School. Of course, the resulting media must be valid and practical to be used by students so that it can be utilized properly.

In the development of nearpod interactive multimedia, there are several previous studies that have been conducted. As conducted by Aulia et al. (2022) they developed nearpod-based interactive multimedia in learning theme 6 subtheme of energy changes in class III. In this study, it is known that the use of nearpod-based interactive multimedia during learning is considered very good, especially in grade III elementary schools. Furthermore, the results of research conducted by Susanto (2021) in class V learning. He stated that nearpod can be used as an alternative media used by teachers in learning science subject content or other subject content. In addition, this media can also improve students' critical thinking skills. Further research was conducted by (Munandar & Ahmad2022) on civics learning in grade II Elementary School. The results of this study state that nearpod interactive multimedia can increase students' understanding and motivation to learn, open teachers' insights into technological developments in the industrial revolution 4.0, and as an innovation, solution in presenting a learning that is fun and easy for students to understand.

Based on this previous research, researchers will develop nearpod interactive multimedia that can be used in learning. The novelty that researchers bring is 1) the curriculum used is an independent curriculum 2) developing media for NKRI elements 3) conducted in grade IV elementary school 4) more diverse media content. Therefore, this research is important to do to add to the variety of learning media that can be used in civics learning in grade IV Elementary School.

Based on the description above, this research aims to develop ICT-based learning media. This research will develop interactive nearpod multimedia based on problem-based learning that is valid and practical to use in learning.

METHOD

The type of research used in this research is research and development (R&D). Development research is a systematic research to design, develop, and evaluate programs that must meet the standards and effectiveness of their users (Setyosari, 2016). (Hamzah, 2021) explains development research is a research used to produce a product and test its effectiveness. The development of interactive multimedia Nearpod in this study uses the Thiagarajan model. The implementation step of the development model from Thiagarajan is known as the 4D model. 4D stands for define, design , develop , and disseminate .

There are two types of data to be used in research, namely qualitative data and quantitative data. The first data was obtained from the results of Nearpod 's interactive multimedia validation request by material, language, and media expert validators. While the second data was obtained from the results of the Nearpod interactive multimedia practicality test responses to 1 teacher and 26 grade IVB students at SDN 24 Ujung Gurun.

The rating scale used in the validation questionnaire and the teacher and student response questionnaire is a Likert scale. The categories of conditions confirmed into the rubric are as follows:

Tabel 1. Questionnaire Assessment Scale

Category	Score
Very good	4
Well	3
Pretty good	2

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Not good	1

Source: Modification Riduwan & Sunarto (2011)

The results of the validation and practicality test of Nearpod interactive multimedia will be processed using the percentage rating formula proposed by Purwanto (2013).

$$NP = \frac{R}{SM} \times 100\%$$

Information:
NP = percent value sought
R = raw score obtained
SM = maximum score
100 = ap fixed number

Validity of the developed Nearpod interactive multimedia can be determined by referring to the following table.

Tabel 2. Interactive Multimedia Validity Category

Intervals	Category
86-100%	Very Valid
76-85%	Valid
60-75%	Valid Enough
55-59%	Invalid
00-54%	Invalid

Source: Modification Purwanto (2013)

While the practicality of the developed Nearpod interactive multimedia can be determined by referring to the following table.

Tabel 3. Interactive Multimedia Practicality Category

Intervals	Category
86-100%	Very Practical
76-85%	Practical
60-75%	Pretty Practical
55-59%	Less Practical
00-54%	Impractical

Source: Modification Purwanto (2013)

RESULT AND DISCUSSION

In development research based on the development of the 4D model, it is limited to three stages, namely define, design, and develop.

Define

The defined stage in this study was carried out by means of observation and interviews at three elementary schools in cluster I, West Padang District, Padang City. From the results of the observations and interviews it was found that the teachers in the three elementary schools had already used ICT-based media in some of the learning materials. However, the media used has several drawbacks, namely (1) learning media is classical. (2) The media used is only in the form of learning videos. (3) Learning media includes writing and pictures only. (4) The learning media used by the teacher does not involve students. (5) The learning media used are varied but still simple and ordinary.

The use of appropriate and innovative learning media is very important in maximizing students' learning motivation. Unfortunately, in the three elementary schools, the use of learning media is still limited to showing videos or PPT through infocus. Triyanto & Sa'diyah (2021) argued that the use of such monotonous media can make students less active and participate less in the learning process. In addition, using the same media can also

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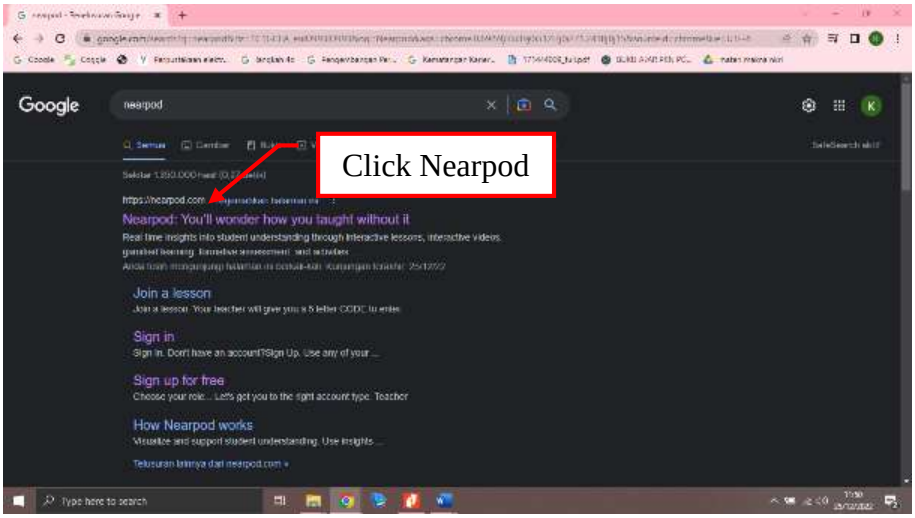
make students easily bored and make their learning motivation decrease. To increase the effectiveness of learning, it is necessary to use more innovative learning media. According to Tandon & Khanna, 2021) interactive learning media such as games and simulations can increase student engagement and motivation in the learning process. In addition, media such as animation and graphics can also help students understand difficult concepts more easily (Dewi, 2018). The use of appropriate and innovative learning media can help increase student learning motivation and maximize learning effectiveness. Therefore, teachers need to consider using more diverse and creative learning media in their learning process.

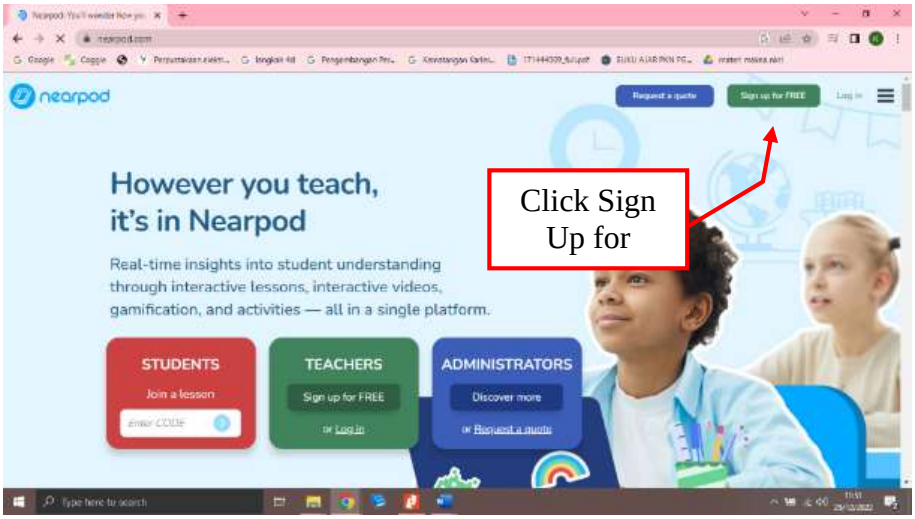
Design

Nearpod software which is a type of cloud-based application with the following stages.

1. Enter on chrome and type Nearpod.

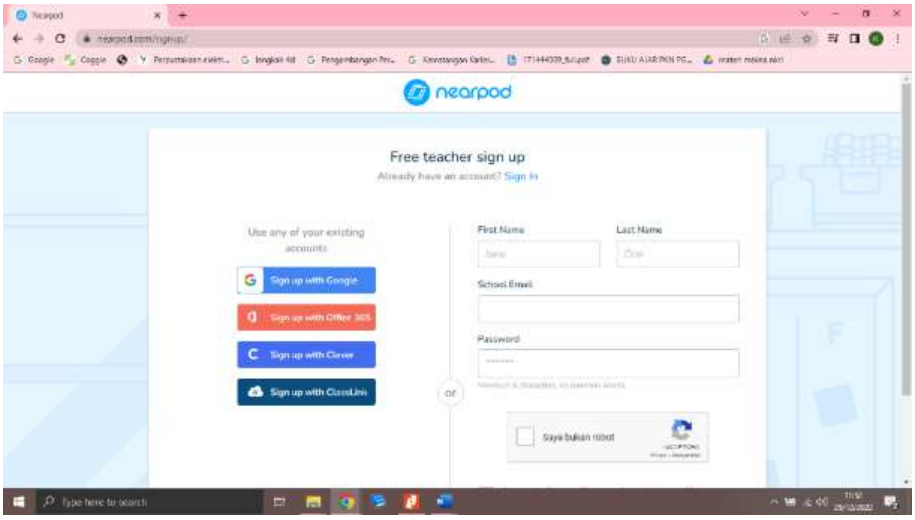


2. Then click Nearpods. Then the display will appear as follows.

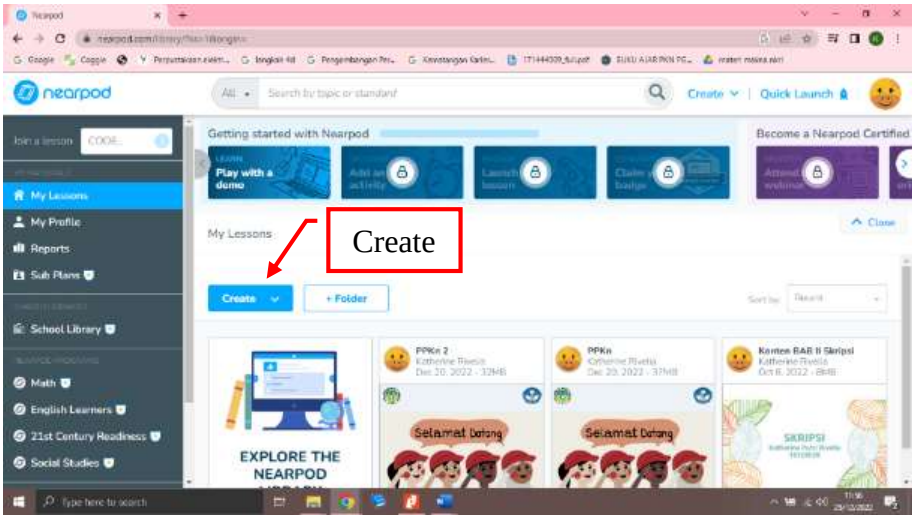


3. Click Sign up for FREE to create an account. Select the type of account, namely Teacher.

4. Create an account by filling in the form provided or you can use an existing Google account.



5. After having an account, nearpod can already be used.



6. To create material, click "Create" and select "Lesson" as shown above.

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Develop

The development stage in this research is carried out to develop interactive multimedia that has been designed previously. The interactive multimedia design will be developed based on comments and suggestions for improvement from experts. Expert input is obtained from the results of validation that has been carried out by experts. The experts in this study consisted of material experts, language experts, and media experts. besides that, the development of nearpod multimedia was also tested on teachers and students of class IVB SDN 24 Ujung Gurun.

Validation Results

Learning media validation is an important process to ensure that the learning media developed is effective and appropriate for use in the learning process. Rahmawati & Rustaman (2020) explain that learning media validation is carried out by involving experts from various fields, such as material experts, linguists, and media experts. This is done to ensure that the learning media is not only materially and linguistically correct, but also effective in conveying messages and motivating students to learn.

According to Rahmawati & Rustaman (2020) after validation, the learning media can be revised according to the comments and suggestions for improvement given by the experts. This can improve the quality of learning media and make it more effective in increasing student learning motivation.

Learning media validation is an important process in developing effective and appropriate learning media. Therefore, learning media developers need to pay attention to this validation process and involve relevant experts in the process of developing and validating learning media.

1. Material Validation

The validity test was carried out twice and obtained different results. In the first validation, a percentage value of 83% was obtained and declared valid. However, revisions must still be made according to comments and suggestions for improving the material validator so that the material used is easily understood by students. After completing the revision, then a second validation is carried out. In the second validation, a percentage value of 90% was obtained and the interactive multimedia that was made was stated to be very valid so that it was feasible to be tested and tried on the field.

2. Language Validation

The validity test was carried out twice and obtained different results. In the first validation, a percentage value of 75% was obtained and was declared quite valid. Interactive multimedia must be revised according to comments and suggestions for improving the language validator so that the language used is appropriate and can be understood by students. After completing the revision, then a second validation is carried out. In the second validation, a percentage value of 88% was obtained and the interactive multimedia that was made was stated to be very valid so that it was feasible to be tested and tried on the field.

3. Media Validation

The validity test was carried out twice and obtained different results. The first validation got a percentage of 91% and was declared very valid. However, there are several components that must be revised according to comments and suggestions for improving the media validator so that the interactive multimedia used is easy for students to use. After completing the revision, then a second validation is carried out. In the second validation, a percentage value of 98% was obtained and the interactive multimedia that was made was stated to be very valid so that it was feasible to be tested and tried on the field.

After the designed interactive multimedia has been declared valid and feasible. Then a limited scale trial was carried out to find out the practicality of the interactive multimedia that had been developed. The small-scale research subjects in this study were 1 teacher and 26 class IVB students at SDN 24 Ujung Gurun consisting of 14 female students and 12 male students.

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Limited scale trial is one of the important stages in the development of interactive multimedia as learning media. Through this trial, researchers can find out the extent of the practicality of interactive multimedia that has been developed in producing effective and efficient learning. In a study conducted by Riyadi & Hidayat (2020), the results of a limited scale trial showed that the interactive multimedia developed was able to significantly improve student learning outcomes. In addition, interactive multimedia is also considered as a fun and interesting learning media for students, so it can motivate them to learn more actively and creatively. This is in line with other studies which state that interactive multimedia can increase students' interest in learning and learning outcomes (Aryanti et al., 2019). Therefore, the use of interactive multimedia in learning can be used as an effective and efficient alternative in improving the quality of learning in today's digital era.

Practical Results

Practicality test was conducted to determine the level of practicality of the developed interactive multimedia. Based on the response questionnaire given to teachers and students after carrying out the trial, the following results were obtained.

1. Results of Questionnaire Analysis of Teacher Responses to Media Practicality

The practicality test was conducted to find out the teacher's response regarding his experience using nearpod interactive multimedia in learning. The purpose of the questionnaire was to assess the practicality of the learning media developed. The practicality questionnaire was filled out by the teacher after the students finished learning the second meeting. Filling out this questionnaire aims to determine the teacher's response to the learning media developed. The following is the result of filling out the response questionnaire given to the teacher.

No.	Aspek yang Dinilai	Skor Penilaian			
		4	3	2	1
1	Bahasa yang diguakan dalam pembelajaran sesuai PUEBI	✓			
2	Penyajian kalimat mudah dipahami oleh guru	✓			
3	Media pembelajaran memudahkan guru untuk menjelaskan pembelajaran	✓			
4	Penempatan gambar tepat sesuai dengan uraian materi	✓			
5	Media pembelajaran memudahkan guru menarik minat siswa dalam pembelajaran	✓			
6	Aktivitas dalam media pembelajaran memudahkan guru untuk membantu siswa dalam memahami materi		✓		
Jumlah Skor (skor maks 24)			23		

Based on the data that has been obtained, the data can be processed using the following formula.

$$\mathrm{NP} = \frac{\mathrm{R}}{\mathrm{SM}} \times 100\%$$

$$NP = \frac{23}{24} \times 100\%$$

$$NP = 96\%$$

The results of the teacher's response questionnaire to the practicality of nearpod interactive multimedia were 96% so that it can be stated that the learning media made were very practical. Overall, the results from the teacher response questionnaire regarding the practicality of the learning media can provide valuable insight into how teachers perceive and use different types of resources in their teaching, and can inform decisions regarding how to design and implement effective learning environments that support student success.

2. Questionnaire Analysis of Student Responses to Media Practicality

Response questionnaires were given to students to find out the practicality of the developed learning media. Of the 26 students who filled out the response questionnaire, the average student response was 91%. So, the developed nearpod interactive multimedia can be categorized as very practical.

It is also important to remember that the practicality of learning media can depend on various contextual factors, such as the subject matter being taught, the age and background of the students, the resources and infrastructure available, and the overall objectives of the learning experience. Therefore, it would be helpful to gather feedback from various stakeholders (such as teachers, students, administrators and parents) to gain a more comprehensive understanding of the practicality of the developed nearpod interactive multimedia.

This research on the development of nearpod interactive multimedia using the problem-based learning model in civics learning also has limitations because it is only applied at SDN 24 Ujung Gurun and only examines the validity and practicality of nearpod interactive multimedia in civics learning in grade IV elementary school only. Perhaps if applied in other areas or different conditions can get different results. However, the results of this study can contribute to the idea that the development of nearpod interactive multimedia using the problem-based learning model has been valid and can be used practically by grade IV students in Civics learning. although limited in a certain area. It is hoped that the results of this study can provide inspiration and learning innovations in the same field or different scientific fields.

CONCLUSION

This research is a Research and Development (RnD) study using the 4D development model. This research aims to develop nearpod interactive multimedia based on problem-based learning model that is valid and practical for Civics learning. In its development, this research has gone through several processes, namely the process of defining, designing, and developing. The validation stage was carried out by three validators of material experts, linguists, and media experts. From the three validations, it was stated that the nearpod interactive multimedia developed was included in the very valid category. So that the nearpod interactive multimedia developed is suitable for testing. At the trial stage, the results showed that the nearpod interactive multimedia that had been made was very practical and could make it easier for students to understand the learning material.

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